American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

FOUNDED 1880

Sell WATERBURY Air Conditioning

Heat alone is not enough for today's standards of comfort! NOW in every city hundreds of people are ready to buy air conditioning—forced, positive circulation of clean, washed air for summer cooling and efficient winter heating and humidifying.

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With Waterbury air conditioning equipment you can not only sell warm air systems to larger homes but also sell forced air circulation for any furnace and washed air systems for homes now equipped with any type of heating. ***This complete line of equipment more than doubles your market and profit possibilities. And it takes you into a field where the earnings are greater and the demand is growing every day.***

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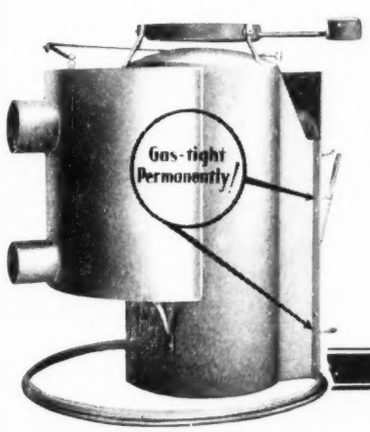

Waterbury SEAMLESS Steel Furnace Body

Sealed in Steel

Part of the WATERBURY Air Conditioning System

Waterman-Waterbury Co.

1122 Jackson St. N.E., Minneapolis, Minn.

NOVEMBER 23, 1931

American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

139 NORTH CLARK STREET CHICAGO

FOUNDED 1880

Merchandising Again Will Be the Keynote!

Letter upon letter (all in our files for your examination) comes to us from subscribers in every section of the United States thanking us for the real help we are giving them in merchandising and selling.

That is Why Merchandising Again Will Be the Keynote

of our Warm Air Heating and Sheet Metal Annual which will be mailed to the trade on December 21st—and continue to be our plan through 1932.

This by no means indicates that the technical and business ends of our great industry will be side-tracked. Profusely diagramed and illustrated technical articles are being prepared by recognized authorities; photographs and stories of actual installations in heating, ventilation, air conditioning, general and architectural sheet metal work have been gathered for months by our editors and are now being whipped into shape.

BUYERS—contractors and jobbers—find our Annuals of real assistance in determining "fashions" and sources of supply for the coming year—for warm air heating and air conditioning (automatic, coal, gas and oil fired) as well as sheet metal equipment and supplies.

LEADING MANUFACTURERS realize this; and year after year display their products prominently in our advertising pages.

It will pay you to join this group of go-getters who are determined to keep the sheet metal and warm air heating industry, an industry of stability and real progress. WRITE FOR DETAILS TODAY!

AMERICAN ARTISAN

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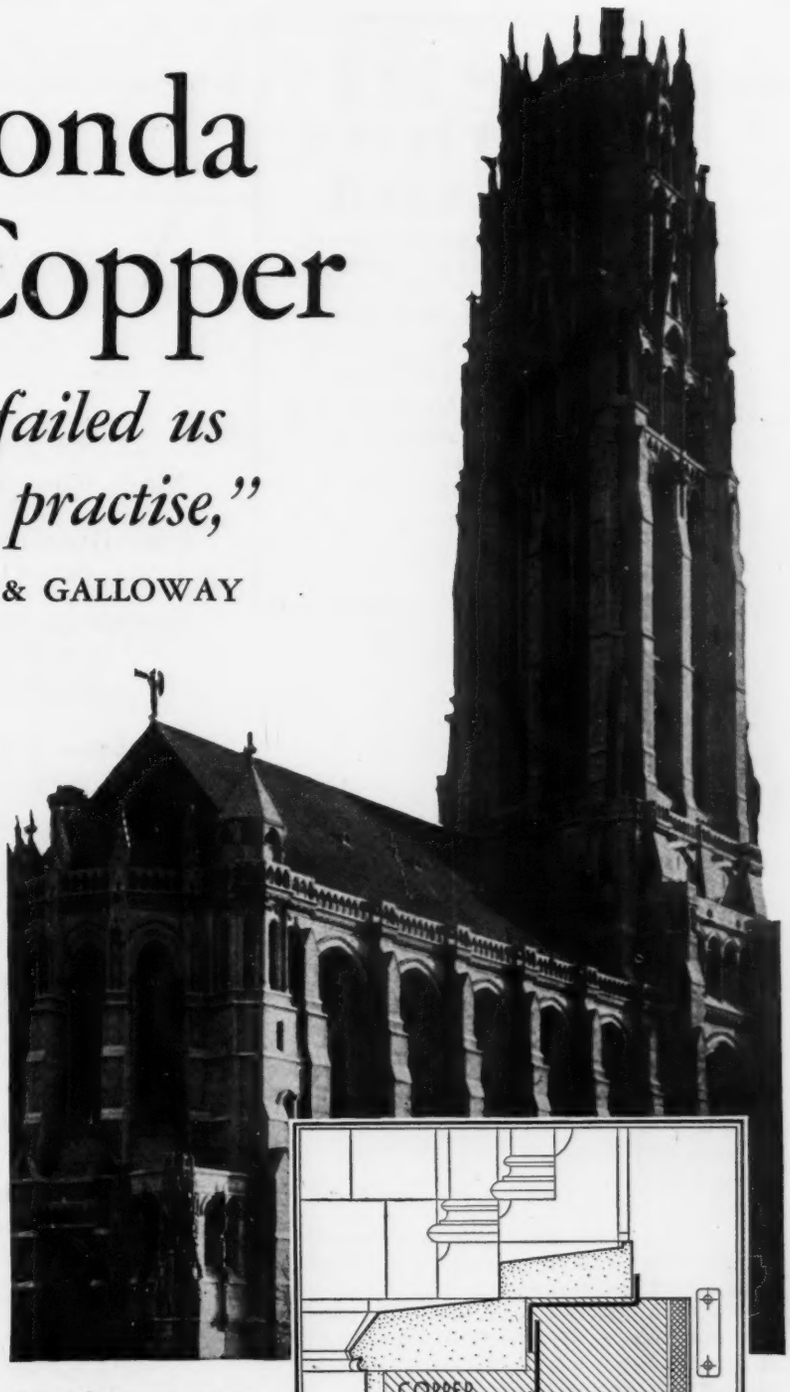
display

d to keep
ability and

Anaconda Sheet Copper

"has never failed us under hard practise,"

SAY NICHOLSON & GALLOWAY



ROOFING the great new Riverside Church in New York with Anaconda Copper was a complicated job. Battens—of half-round batten type—were laid on 15-in. centers . . . dormers were sheathed with copper . . . box gutters were both exposed and lined.

But Anaconda Sheet Copper "has never failed us under hard practise in making sharp bends" report Nicholson & Galloway, the contractors. "In our experience with Anaconda Copper, it has always proved true to weight and free from buckles."

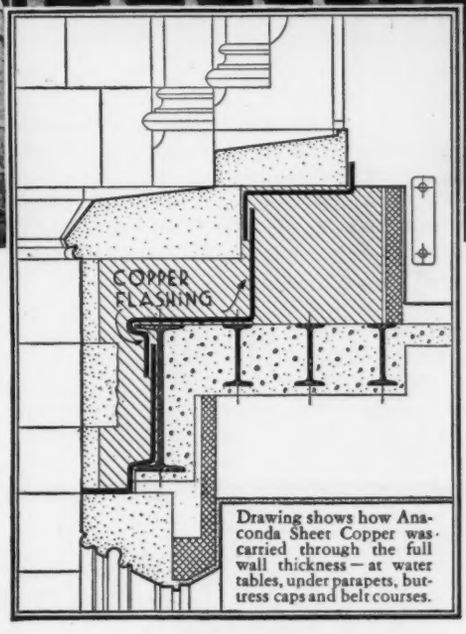
ANACONDA
from mine to consumer

The unvarying flatness and correct temper of Anaconda Copper make it easy to work. Distributors in principal cities can supply it promptly in sheets, rolls and Economy Strips. The American Brass Company, General Offices: Waterbury, Connecticut.

Anaconda Copper—33 tons of it—was used on the new Riverside Church at 122nd Street and Riverside Drive, New York City, N. Y.

• • •

Sheet Metal Contractors: Nicholson & Galloway
Architects: Henry C. Pelton, Allen & Collens
General Contractor: Marc Eidlitz & Son
All of New York, N. Y.



Drawing shows how Anaconda Sheet Copper was carried through the full wall thickness—at water tables, under parapets, buttress caps and belt courses.

ANACONDA COPPER

Founded 1880

American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

Covering All Activities
IN
Gravity Warm Air Heating
Forced Warm Air Heating
Sheet Metal Contracting
Air Conditioning
Industrial Roofing
Merchandising
Ventilating

Member of the Audit Bureau of Circulations

VOL. 100, NO. 24

NOVEMBER 23, 1931

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Contents

Page

What's Happened to Furnace Repairs? 9

Platte Overton's Engineering Service 9
The editorials.

Semi-Air Conditioning in Toledo Homes 10
In Toledo air conditioning is receiving public commendation. The Schmidlin company has installed numerous systems like the one discussed in this article.

Ventilation in Industry 14
Better and more adequate ventilation for public and commercial buildings is gaining favor. R. C. Nason points out some of the possibilities in work of this kind.

Profits from Difficult Specialty Work 18
Paul Schmidt, a Pasadena contractor, has built a profitable business on jobs which seem difficult to undertake.

Fan Blast Engineering 20
Platte Overton continues his discussion from last issue on designing trunks and branches to resistance.

A Page of Merchandising Ideas 17
Two short articles, one on sales letters and one on burial vaults for pets.

Solutions for the Heat Robber Problem 22
The first suggestions from readers on methods to be used to get heat to the bathroom shown in the problem presented November 9.

The Fundamentals of Selling 25
The oil burner industry has learned many things about selling specialties. In this article W. J. Smith, an official of the American Oil Burner Ass'n, points out a few danger points.

New Items and News Items 26

Quite frequently we have published articles telling about Toledo, Ohio, heating installations. As a matter of fact Toledo, in spite of hard times has witnessed a truly remarkable public acceptance of semi-air conditioning. Just how far this acceptance has progressed is well illustrated by the leading article of this issue. It is a story of perseverance, aggressive selling and continued adoption of new ideas and new equipment.

* * *

With sheet metal work noticeably below previous years' levels, many contractors have turned to specialties as a source of steady profit. Just such a contractor is Paul Schmidt, whose operations are discussed in this issue.

JOSEPH D. WILDER
Editor

Published Every Other Monday

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PORTER-SPOFFORD-LANGTRY CORPORATION
139 North Clark Street, Chicago—Telephone Central 7670

Fred D. Porter, *President* John C. Langtry, *Vice-President* Howard H. Bede, *Secretary*
Circulation Manager: John R. Hannon *Business Manager:* Etta Cohn *Advertising Representative:* Charles E. Kennedy
New York Office: 295 Madison Avenue, Room 1109, *Tel. Ashland 4-5342*—L. R. Hudson, *Eastern Representative*
Yearly Subscription Price—In United States, $2.00; Canada (including duty), $4.30; Foreign, $4.00; Single Copies, $.25

Entered as second-class matter, January 29, 1930, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Formerly entered on June 23, 1887, as American Artisan and Hardware Record

True Talks

with successful sheet metal men

SERIES No. 1 NUMBER 9

EVERY BUSINESS IS A PROSPECT FOR THIS MONEL METAL SPECIALIST

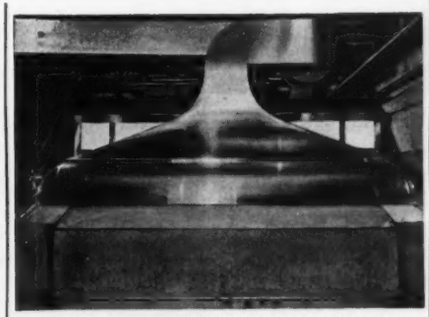
White's trade includes dentists...dairies...barbers...bakers...restaurants...milliners and laundries...has active mailing list...but no bad debts!

James H. White, junior member and now active head of J.R. White & Son, Schenectady, N. Y.

Shortly before America fired its first shot in the World War, James R. White, a journeyman metal worker of Schenectady, N. Y., and his son decided to open a sheet metal shop. Their assets were meagre and their equipment barely more than the tools of the average journeyman. But the White shop is still open—and the way it has grown is a story worth telling!

From the very outset, J. R. White & Son have been progressive, wide awake ...always keeping an eye peeled for ways to build business and never letting an opportunity for a profitable sale slip away. And about five years ago, opportunity in the form of a local restaurant owner, walked right in the front door.

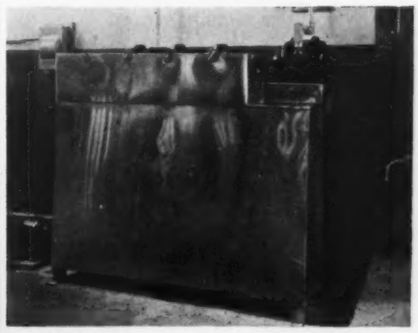
This caterer wanted the table under his coffee urns covered with a material that would look clean and inviting and would withstand the attacks of coffee and hot water. "Let's try Monel Metal", suggested the White shop; "We've seen it advertised frequently—maybe it will do the trick."



This bread oven ventilating hood is typical of the quality Monel Metal work turned out by the White shop.

It did. Today that coffee stand is still on the job—and it was the forerunner of a demand for Monel Metal equipment which has brought the White firm wide prominence as specialists in this modern metal.

In addition to nearly all the restaurants in Schenectady, J. R. White & Son have supplied Monel Metal equipment to dairies, beauty shops, varnish plants, bakeries, laundries—even dentists, barber shops, and milliners. Their market is wide and diversified. Wherever Monel Metal can do a job—can fill a need for equipment that must be attractive, rust-proof, corrosion-resisting and durable—the White shop is "Johnny-on-the-spot." The firm thrives on unusual or highly specialized installations.



All-Monel Metal test mixer built for the milk, ice cream and varnish fields by J. R. White & Son.

An active, up-to-the-minute mailing list helps the White organization keep a jump ahead of competition in lining up new jobs. This systematic mail follow-up is based on the INCO cooperative plan described recently in the trade press. This campaign has brought in many sizable orders from several fields.

Modern selling methods backed up by a "go-getter" spirit have brought rapid expansion and sound prosperity to the White company. When the firm was founded, a two-wheeled hand cart was its sole means for the collection and delivery of work. Today, two motor trucks are required to handle deliveries. At least seven journeymen are kept constantly busy and often a dozen or more are on the job. Overtime is the rule, bad debts don't exist on the firm's books, prevailing union wages are paid to the workers and customers seldom require estimates on the orders they place!

This modern, well-equipped shop is already becoming too small for J. R. White & Son.

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

A HIGH NICKEL ALLOY

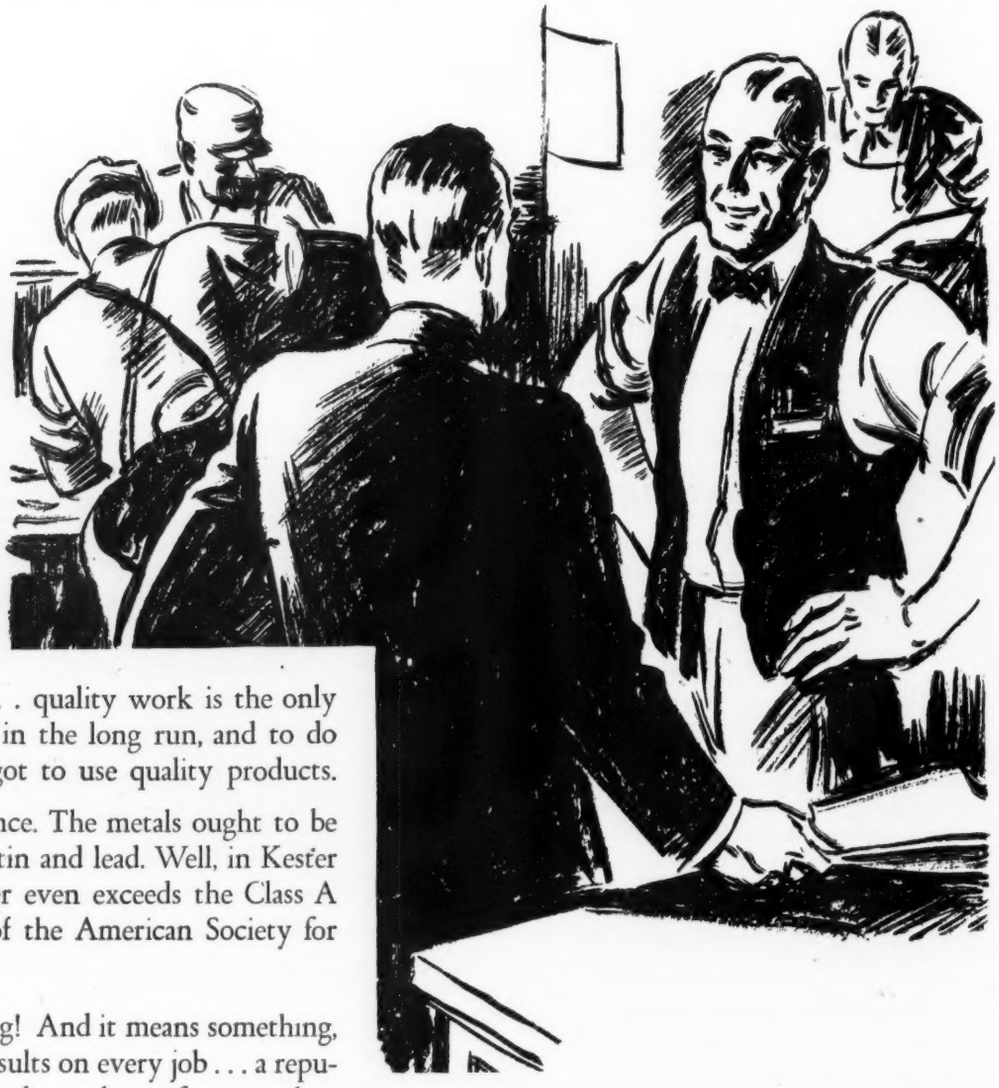
MONEL METAL

NICKEL ALLOYS PERFORM BETTER LONGER

INCO MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

"Tom . . KESTER is even better than the A. S. T. M. says it has to be!"



"No use talking . . . quality work is the only kind that pays in the long run, and to do quality work you've got to use quality products.

"Take solder, for instance. The metals ought to be highest quality virgin tin and lead. Well, in Kester Solder, they are! Kester even exceeds the Class A Purity Specifications of the American Society for Testing Materials."

That's *saying* something! And it means something, too! It means perfect results on every job . . . a reputation for high-class work . . . the preference when important jobs are handed out! But that isn't all! You and your helpers will find Kester more convenient. No separate fluxes to bother with . . . the flux is right there inside the solder, and all you have to do is apply heat. Kester's speed and economy enable you to bid on more jobs, too . . . and keep every man in your shop on your payroll regularly, for twelve months in the year. Why not try Kester out at our expense. We'll send you free working samples of Acid-Core, Rosin-Core, Paste-Core, or all three if you like. Your jobber sells Kester, too, 1, 5 and 20 pound spools.

Kester Solder Co., ***Inc. 1899.*** *Main Office & Plant,* 4241 Wrightwood Ave., Chicago, Ill. *Eastern Plant,* Newark, N. J. *Canada*—Kester Solder Co. of Canada, Ltd., Brantford, Ont.

KESTER FLUX-CORE SOLDER

Acid-Core • Paste-Core • Rosin-Core

FREE WORKING SAMPLES . . . *any flux you want . . . write for it*

Say you saw it in AMERICAN ARTISAN—Thank you!

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YOUR stock-in-trade is the work you do to steel sheets furnished by their maker. You have no hand in their making; you cannot control their quality. How can you be sure your reputation is safe with the steel sheets you use?

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Furthermore, each step is in constant check with the huge store of knowledge gained in Inland's long experience in making all kinds of basic open-hearth steel sheets. And as final guarantee of exact quality, Inland controls its own raw materials by ownership of its coal and ore mines and limestone quarries. *You can feel secure with Inland Sheets forming the backbone of your products.* INLAND STEEL COMPANY, 38 So. Dearborn Street, Chicago, Illinois.

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ABLE SERVANT OF THE CENTRAL WEST

Sheets
Bars — Plates
Bands — Structurals
Rails — Rivets
Track Accessories — Billets

Mention AMERICAN ARTISAN in your reply—Thank you!

WEIR furnaces that were made 35 and 40 years ago, when steels and manufacturing methods were not as good as they are today, are "still on the job and going strong"—right here in Peoria and in many other places.

Entirely satisfied customers who, year after year, tell their friends what a good furnace their WEIR is, help the business of our dealers very much—their references and testimonials are great aids to new sales.

Isn't that the kind of a furnace you would like to sell—a furnace that goes on giving more than mere satisfaction "long after the price is forgotten"? And with its newest features, the WEIR is better than ever.

Recent developments, including outstanding accomplishments in the AIR CONDITIONING field make the WEIR dealership increasingly desirable—and we assure you of a gratifying sales co-operation on our part.

THE MEYER FURNACE COMPANY

PEORIA, ILLINOIS

THE WEIR IS NOW IN ITS 50th YEAR

Say you saw it in AMERICAN ARTISAN—Thank you!

Volume 100

American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

Number 24

What's Wrong with the Repair Business?

BY all rights this fall should have been and should still be an excellent period for the sale of furnace repairs. But reports coming in from contractors declare that the sale of repair work and repair parts has not been up to expectations.

These reports from dealers have pretty generally agreed that some items are going good, but that others are lagging behind. For instance, one dealer reports that he has sold more smoke pipe this year than in any previous season, but that the sale of a set of grates or a fire pot is requiring as much selling effort as he used to put on the sale of a complete replacement job.

Another contractor who ordinarily does a big business in repair work during the fall tells us that in his town competition is so keen that every repair job is attracting from five to ten bidders and that work is going at prices which can't possibly return a profit.

Of more interest, however, is his declaration that this intense competition is not due to a lack of repair work so much as it is to the general laziness of dealers in his town. He means by this, he says, that most of the contractors won't get out and canvass for repairs, but are content to sit and wait for a rumor of a job or for some owner who has been solicited to phone for another bid. The situation would be alleviated, he declares, if these other contractors get up enough ambition to get some prospects of their own. If they had their own prospects, he contends, they would not be so afraid of losing one job that they cut prices right and left to get work.

To our mind the conclusion drawn is most interesting.

Visualize the picture for a moment. The writer of this letter is a real go-getter. We know that he sells personally and that ordinarily he has at least one other canvasser out digging up business. Most persons would say that this man is rightly entitled to a profitable share of the work. But he is losing profitable work because other contractors, less ambitious, are cutting in and profiting on his preliminary work. These men are getting business solely on price when there should be enough business for all to profit if all would work.

Doubtless nothing constructive will develop from this situation. The progressive contractor will continue to lose work because human nature being what it is only a catastrophe will stir the other dealers to get out and work.

Every dealer knows that no business has progressed until all hands got out and began to work. The oil burner industry is an example. The man who sold the first oil burners got laughed at and most of them went broke because of service. Yet today because so many men put their energy and thought and ambition into selling burners, the burner business is one of the really remarkable merchandising programs.

The same procedure is possible to duplicate in our field. Unquestionably there is much repair work needing to be done, if only the owner is approached in the right way. Lots of home owners have money enough to get such work done for cash. Some means of financing time payments or payments out of income can be arranged for the others.

Overton's Service

SEVERAL months ago we announced a revolutionary step when we gave out the first news of Platte Overton's engineering service at mail order prices.

In making that announcement we said that frankly we didn't know whether or not the industry was ready for such a step. Since that announcement was made a summer and fall have passed. The period has been one of uncertainty and depression unparalleled in business history.

In spite of these drawbacks, however, a very appreciable volume of engineering work has been sent to Overton. This work has come from all parts of the country and from Canada. Wherever possible we have followed up these plans to inquire whether or not the service is up to expectations. The answer in every case has been highly pleasing to us.

We thought then, and we think now, that this industry is big enough and important enough to have a strictly warm air heating consulting engineer of recognized standing in its ranks. That judgment has unquestionably been verified by the number of contractors who have called upon this service to help them get the big job which means a profit.

We are, therefore, happy to have been of service to readers. Such service is, after all, the basic reason for a business paper's existence. We hope to continue.

An exterior view of the Cameron home

Semi-Air Conditioning Is Popular in Toledo Homes of This Type

THERE has been under way in Toledo, Ohio, during the past three years an important and highly interesting development in forced air heating. There possibly are, at this time, more forced air heating systems in residences in Toledo than in any comparable community.

This acceptance of forced air heating by the Toledo public did not just happen, but has been carefully and tediously fostered by the group of warm air heating contractors operating there. It is interesting to note that this group of contractors has not functioned as a co-operative association, but rather as intensely competitive firms, each one trying to sell forced air heat by offering better engineered jobs, better service, better systems than the competitors.

Of the several progressive firms installing forced warm air heat in Toledo, the Schmidlin Brothers Company has had the kind of expansion which illustrates what happens when a group of firms really determine to place forced air heating before the public.

November 14, 1931

The Schmidlin Brothers Company,
Bancroft at Albion St.,
Toledo, Ohio
Gentlemen:

I want to advise that the heating and air conditioning system in my home, at 3446 Chestnut Hills Road, Ottawa Hills, consisting of a furnace installed complete with blower, humidifier, etc., is giving entire satisfaction.

You will be interested to know that after installing the oil burner on December 15th, 1930, the consumption of oil up to April 15th, 1931, averaged 100 gallons per week. This, we believe very remarkable, and a record of which you may well be proud.

We find that this method not only heats the home, but gives an ideal air condition.

I want you to know this as you were very interested in the work and will be glad to learn that we are very much pleased.

Yours very truly,
(Signed) H. O. Cameron

The Schmidlin company was formed by Carl and Dan, brothers, newcomers in the warm air heating field several years ago. During the first part of the firm's existence it conducted a gravity installation business.

When forced air first began to make itself known, the company saw in this new development an open door to the owners and architects of homes costing from $15,000 to $50,000, or more. With gravity systems these homes had gone steam, vapor and hot water because architects and home owners did not have sufficient confidence in warm air to adopt it even though many of them realized that warm air offered health, comfort and economy in far greater measure than did other types of heat.

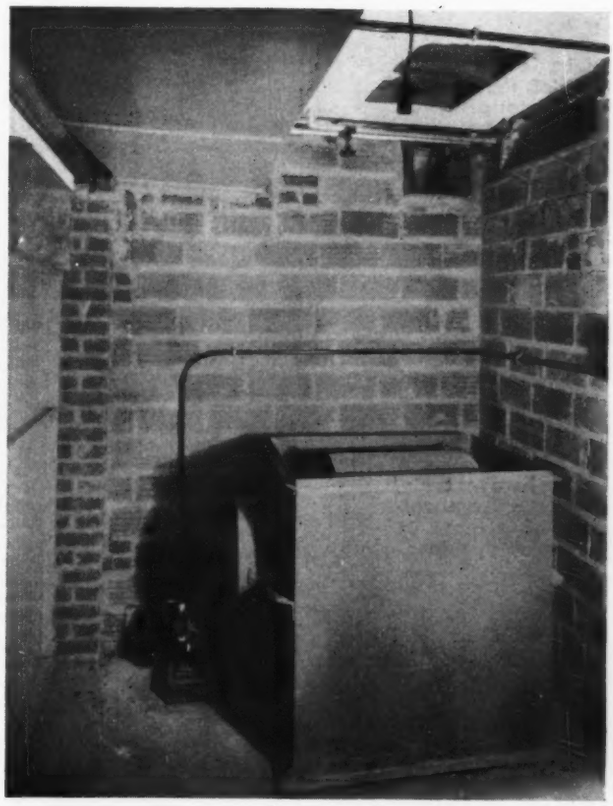
Forced air propaganda was first

tried out on prospects raised by canvasers and then on the owners of small new houses. Gradually owners of larger and larger houses were subjected to the campagin of forced air benefits. The last prospect has been the architect and the speculative builder.

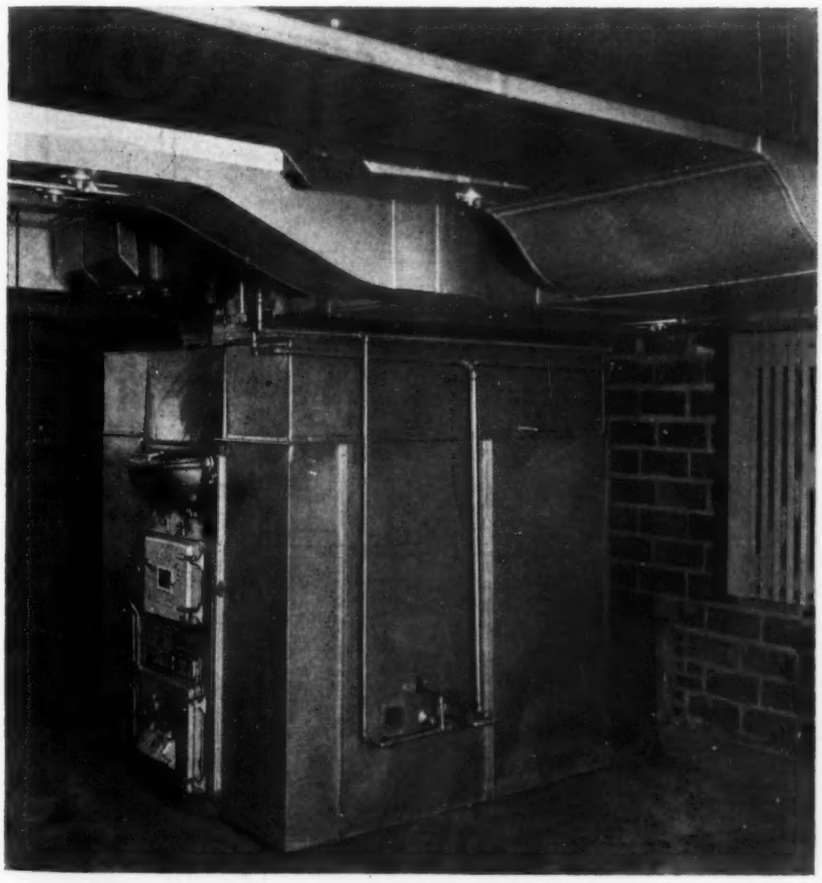
During all this time when forced air heat was being popularized new types of equipment and advances in design were carefully investigated and incorporated in the systems the Schmidlin company designed and installed. An engineering department was organized and now two men, both with a background of warm air experience are kept busy designing systems for the company.

Not every plan drawn is sold, but every prospect is shown a plan specifically prepared for his house and the entire sales program to which that prospect is subjected is based on that specially prepared plan.

The installation which the company actively recommends now is a reasonably advanced air conditioning system. Most such installations use automatic heat, either gas, oil or stoker fired coal. To this type of heater a blower and washer, or filters, both automatically controlled is attached. Rectangular duct work is recommended and most of the systems are completely painted, square cased and carefully designed to operate with the minimum of attention for both the owner and the Schmidlin company.



The blower is located in a separate return air chamber into which return air from the house is dumped. The return air ducts are cut off at the inside of the blower room walls as shown here. In this picture a ceiling return and a side wall return opening are shown. The blower is connected to the furnace by a special sheet metal boot which passes through the wall



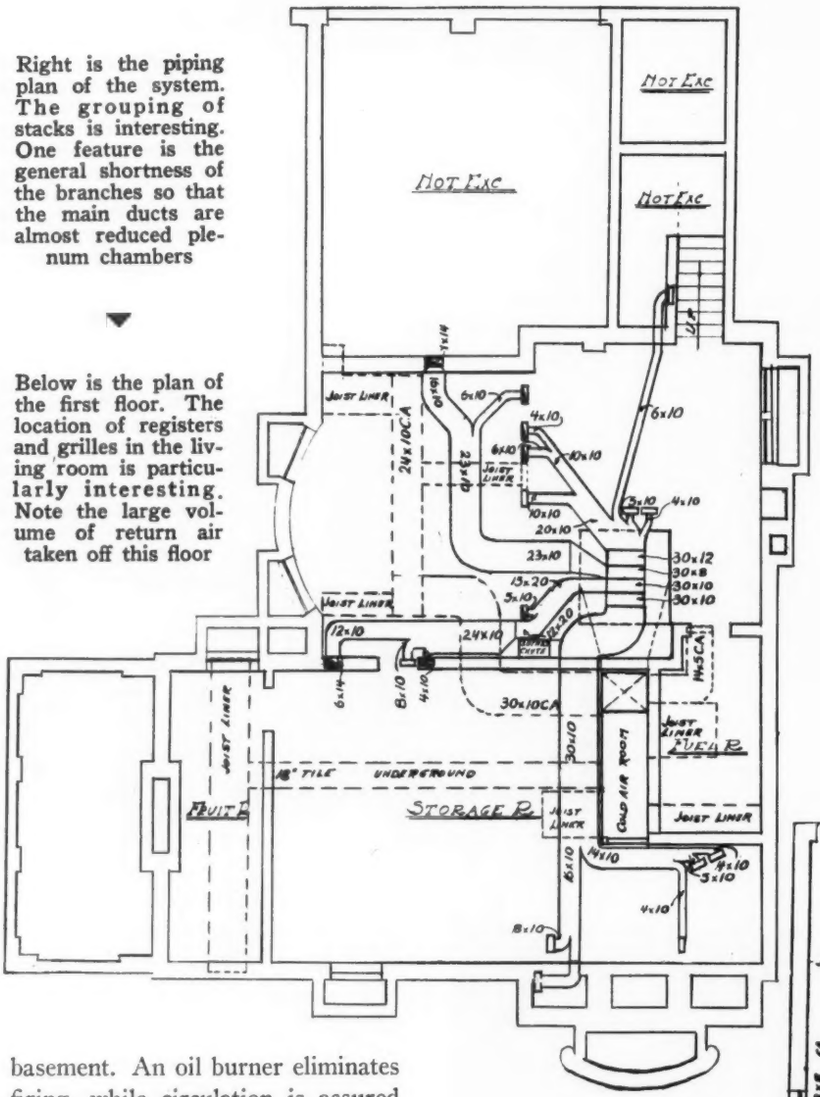
The furnace is square cased. Since this picture was taken the owner has added an oil burner. All basement ducts are rectangular with quadrant dampers at branch take-offs

The photographs and drawings with this article show one installation made last fall. This installation was especially prepared for the owner of the large and beautiful house pictured. This owner wanted a system which was modern and which would supply plenty of heat, correct humidity, positive circulation of air, and automatic operation. The system designed to meet these requirements is shown here.

The heater used is a Weir steel furnace housed in a square casing and placed in a small heater room in the least desirable area of the

Right is the piping plan of the system. The grouping of stacks is interesting. One feature is the general shortness of the branches so that the main ducts are almost reduced plenum chambers

Below is the plan of the first floor. The location of registers and grilles in the living room is particularly interesting. Note the large volume of return air taken off this floor

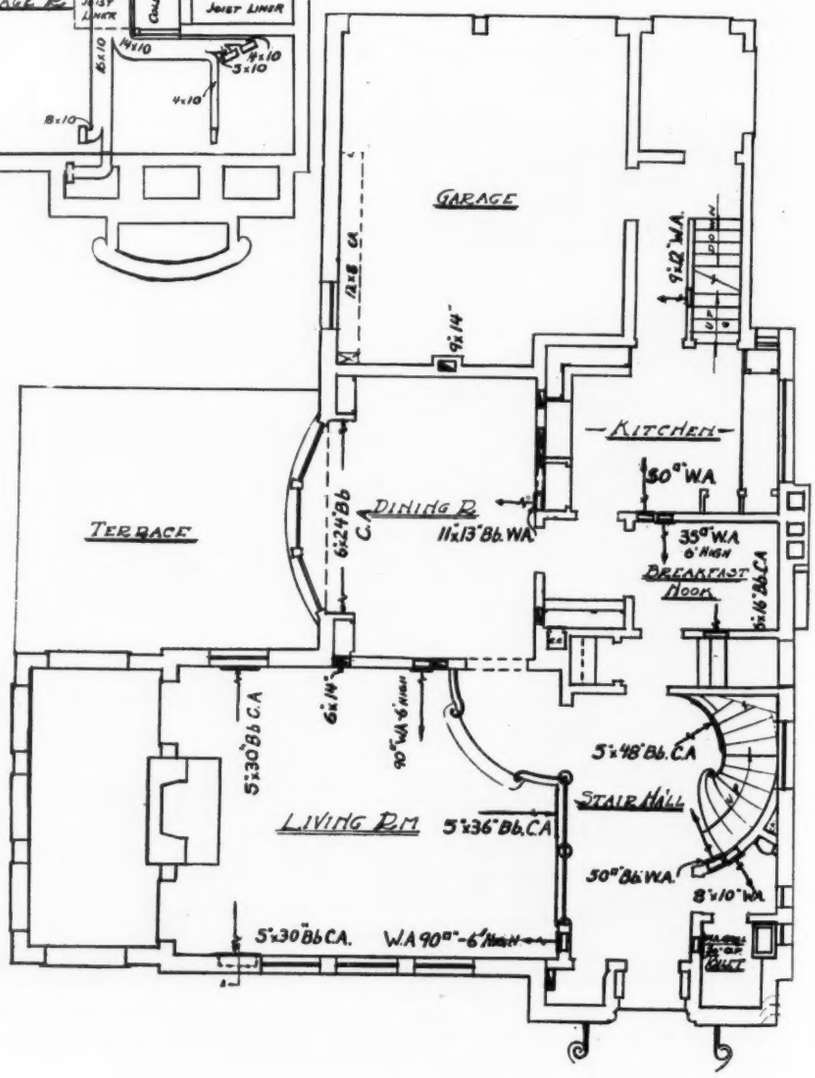


basement. An oil burner eliminates firing, while circulation is assured by using a pressure type blower. Since with forced air the heater could be placed anywhere, the purchase of this system made it possible for the owner to build a large recreation room in the basement in addition to the usual heater, laundry and storage rooms. This ability to place the furnace was used as one of the strong talking points in the progress of the sale.

One of the interesting features of the system is the use of an individual blower room. The location and use of this room is shown on the basement plan. All the air drawn from inside the house is brought to this room. Some ducts empty at ceiling level. The ducts from the living room and bedroom number 1 are taken down into an under-floor tile duct which empties into the blower room at floor level. Another pair empty through the false ceiling. Just how this blower room and the duct openings look is shown in one of the photographs. Use of a cold air room, especially where a washer is used, has been one of the innovations of the company's larger installations.

On this particular house a washer was not used, but a bank of filter sections is placed ahead of the furnace, in the blower room.

This system shows several typical Schmidlin features. All leads are bunched into main ducts and the number of mains is kept down to as few as possible. On this house four main ducts are used. The basement plan shows just about how these ducts were run. Some minor changes were made from the plan to shorten runs and reduce labor in fitting and cutting. This basement plan shows that, in general, one duct feeds registers in



each section of the house with scattered small branches from one main entering the area of another main where some saving in metal and labor was effected.

These mains connect with risers and registers of the first and second floors located generally in the principle of inside warm air registers and outside wall returns. This necessitated cross-over ducts in three of the bedrooms where it was impractical to bring the return air down an outside wall. These locations show on the various floor plans.

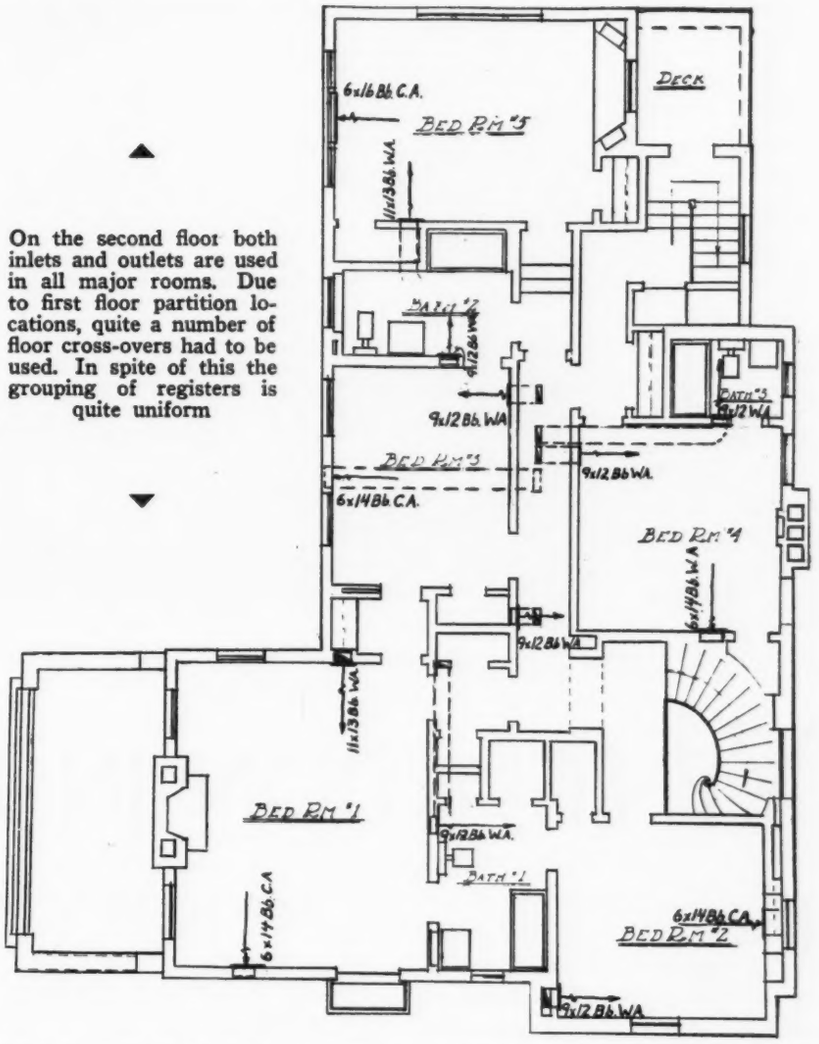
On the first floor the studio living room with its group of large front windows is supplied from two warm air grilles and outlet through three baseboard grilles. In the treatment of this room warm air is introduced from one end and the inside wall.

Return air ordinarily would be taken care of through the two grilles located in the two outside corners, but in this room the doorway into the large stair hall is in one corner at the top of a low stair rise. Air from the hall might seek this living room level, so a grille was placed at the foot of the low stairs to catch it.

In the stair hall a two-supply one-return plan was adopted with the warm air registers located two ways from the stair level and the return in the inside of the stair curve as shown. In the dining room and breakfast room one supply and one return was used and in the other smaller rooms of the first floor one supply and no return.

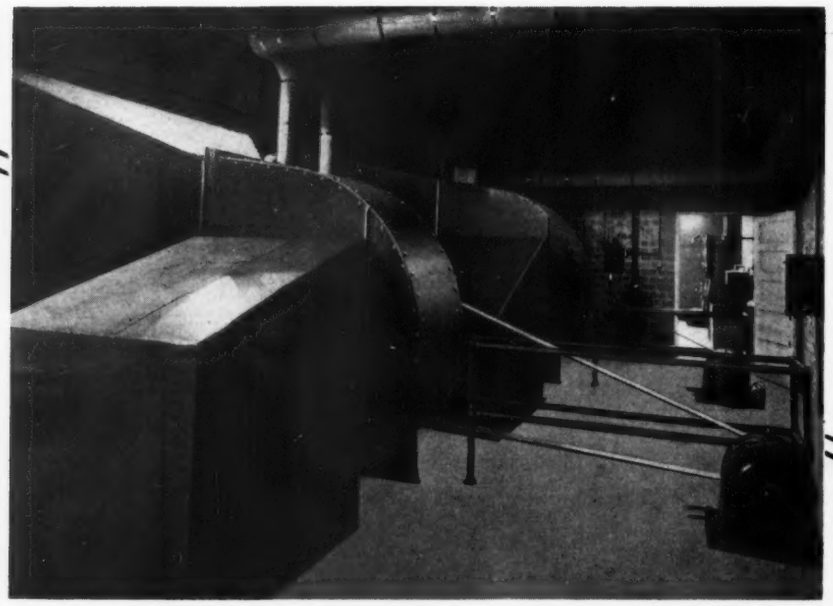
On the second floor there are five bedrooms and three baths. The return air from the master bedroom is connected into one of the living room returns at the first floor level. Each of the other bedrooms has both supply and return with the locations as indicated. In bedrooms 5 and 3 the under floor cross-overs had to be used, while in bedroom 4 a cross-over supply had to be used. The need for these came from the fact that these rooms are connected into risers which have to use the kitchen-dining room partition on the first floor, due to the dining room bay window.

While, as we stated, this house is an excellent example of what can be done by aggressively selling good equipment, the house is not as advanced from the standpoint of air conditioning as some systems this firm has put in. The installation is, nevertheless, an indication of the type of systems finding ready sale among home owners of Toledo.



On the second floor both inlets and outlets are used in all major rooms. Due to first floor partition locations, quite a number of floor cross-overs had to be used. In spite of this the grouping of registers is quite uniform

The special annual issue will be published December 21, 1931. Months have been spent gathering material, pictures, and arranging the articles. The issue will be filled with ideas, examples and methods contractors have used to make money. The issue will be a cross-section of successful operations based on 1931 conditions



Courtesy Autovent Fan abd Blower Co.

A typical large central fan room in a school building

VENTILATION IN INDUSTRY

By R. C. NASON

IN ventilating commercial or industrial buildings with mechanical apparatus, three methods are in common use today. Most simple, perhaps, is the motor-driven propeller fan installed in the upper casings of windows of large rooms where many persons work or sit, as, for example, a court room, auditorium or large office.

The fresh air need is practically a necessity in offices. Business managers finally have come to appreciate that good health of employees is one of the greatest sources of profit through preventing loss of services on account of sickness. They also realize that window ventilation is uncertain and ineffective in performance.

These are two ways of estimating the sizes of fans to install in large offices. One is dividing the cubic contents in feet by 20 (for a 20-minute air change). The other is figuring to provide each employee with 30 cubic feet of fresh air per minute. Arithmetic in both cases is simple, so it is best to estimate both methods for checking, for sometimes large rooms have few occupants and in other instances the reverse is true.

Too rapid air changes in offices is inadvisable because of the matter of heating, for as the fans exhaust their load of air they withdraw at the same time a large quantity of heat. When air change is more rapid than once every 20 minutes, especially in the cold season, some provision must be made for warming the supply that enters to compensate for the air and heat withdrawn.

Courtesy American Blower Corp.

A simple installation in which air enters the room through staggered orifices in the side of the duct

For this reason and others there has been a steady increase in use of unit room ventilators. Such units directly curtail the activity of the heating and ventilating contractor, unless he sells such units. These are year-round appliances because in the tops of their cabinets there are usually radiation sections. We refer here to the type of unit that is enclosed in a metal cabinet, has means for humidifying—usually a water pan in the bottom—directly above it one or twin motor driven fans, then above them a heating element.

The arrangement of the parts of such ventilating-heating-conditioners in some cases is not as just described, but the three major parts will be found. Heating-ventilating-conditioning cabinets usually are located in front of windows, the air

supply being sucked in directly through narrow openings in the bottom of the windows. In winter their heated-ventilated-conditioned air is delivered upward and outward, thereby preventing heat loss at these points just as ordinary radiators do.

Manufacturers' catalogs furnish practically all needed data on estimating their sizes. Both radiation, fan sizes and speeds are designed large enough to heat the desired quantity of air supply handled at some temperature well above 70 degrees. This general type of unit has earned and is daily receiving considerable attention and is being sold by heating contractors in large numbers with a vast degree of satisfaction all around.

The former two classes of ventilating apparatus are excellent for existing buildings, where there is insufficient space for extension of sheet metal ducts and where room appearance is considered important. But in other kinds of buildings especially industrial, public, theaters, schools and other classes of structure, basement-installed, motor operated mechanical fan systems continue to enjoy wide favoritism. Such layouts resemble the old, familiar hot blast arrangement but with an air washer added.

Courtesy Autovent Fan and Blower Co.

Many large offices effect air change by wtihdrawing air with a fan like this and letting infiltraton care for renewal

In estimating forced air heating and ventilating systems heating dealers must add to the heat loss due to transmission, leakage and exposure sufficient heat to raise the ventilation air to about 125 degrees, which is the customary temperature at which such systems deliver their supply through room grilles. Hence, the incoming heated air, in cooling to room temperature of 68 degrees or lower, gives up its heat to the rooms whereby warming occurs.

Continued recirculation of interior air was considered a new fangled idea for many years, but now is the common practice when air washers are used. By passing the air through an air washer of the mist nozzle type it is refreshened, cleaned of its dust and, by varying the temperature of the washer water, humidification in winter and dehumidified and cooled in summer if suitably cold water is available.

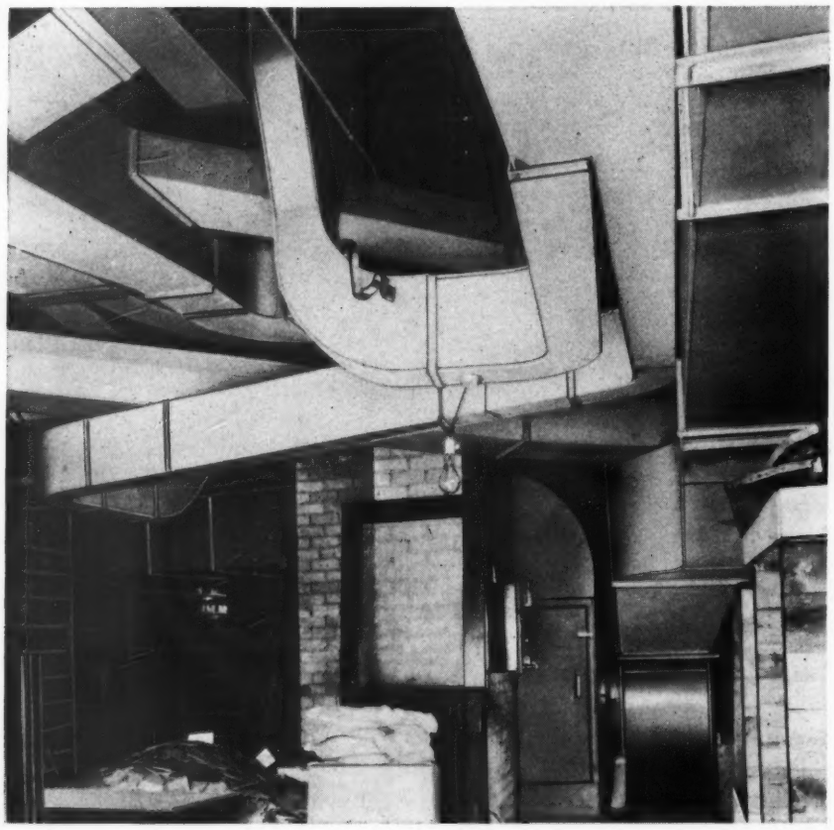
In estimating such systems one might take a factory workroom 400 feet long by 110 feet wide, with a 25-foot ceiling where the desired temperature is 65 degrees and the air will be recirculated.

Contents are 1,100,000 cubic feet and it is assumed that warming up may be done in two hours. The heat loss due to transmission, leakage and exposure, found from standard tables and rules, is 3,300,000 B.t.u. The interior is taken as 30 degrees and must be raised to 65 degrees, the prevailing or desired occupation temperature.

By the familiar rule, 1 B.t.u. will

These exhaust fans handle fumes from a chemical laboratory. The metal of the fan is of special alloy. Duct joints are soldered or painted tight

Courtesy American Blower Corp.



Courtesy American Blower Corp.

This installation air conditions a bank. In order to supply air to the various inlets the fan room is criss-crossed wth a net work of special duct shapes and fittings. However, by having the fan room high, the floor space is available for storage

raise 55 cubic feet of air 1 degree, hence 0.01818 B.t.u. will raise the temperature of 1 cubic foot 1 degree. But 0.674 are required to raise 1 cubic foot 35 degrees (from 30 to 65 degrees). Consequently, for warming up, that is, warming up the contents, we figure:

$$\frac{1{,}100{,}000 \text{ (cubic feet)}}{2 \text{ (hours)}} = 0.674 = 370{,}700 \text{ B.t.u.}$$

Add this to the previous 3,300,000 B.t.u. and 3,670,700 B.t.u. is total requirement to be furnished by the heater connected to the fan.

Ordinarily there will be about a 15-degree loss in temperature in the duct system, so 140 degrees is taken as the temperature of the air as it leaves the heater, with the idea of furnishing 125-degree air at the room grilles. This cools to 65 degrees, room temperature, hence gives up 0.968 B.t.u. per cubic foot. On an hourly basis this must be multiplied by 60 to find the correct volume of air to be handled by the fan and heater.

Hence,

$$\frac{3{,}670{,}700}{0.968 \times 60} = 63{,}200 \text{ cubic feet, to}$$

be delivered to rooms at 125 degrees.

As cold air is less in volume than warm air one estimates that the 58,000 cubic feet that enters the heater will increase to 63,200 cubic feet at 125 degrees or to about 65,000 cubic feet at 140 degrees. The fan is figured at the highest volume and the heaters and washer at about 58,000, although this will be slightly greater because in front of the washer there is a primary heater that raises air from 30 to about 50 degrees. In completely recirculated jobs sometimes the primary heater is omitted.

It was not many years ago that the forced air method of heating and ventilating suffered a check in its advance due to the usurpation of the factory heating field by unit heaters, a method that has enjoyed phenomenal growth in late years. Now, as industrial management has come to appreciate the value of humidification and cooling and as box office people have seen ticket receipts increase in properly conditioned restaurants, hotels and theaters there are indications of a swing towards the basement installed fan and duct system in combination with air washers and refrigeration apparatus. This is a good sign for heating engineers because it brings to them increased work and large contracts.

In so far as theaters are concerned, it is more than "monkey see, monkey do," the one trying to keep up with the other, from reasons of pride. Patronage seeks physical comfort to a degree never before experienced. And so long as theaters and restaurants are available where summer cooling is in force patrons will attend here rather than perspire in unventilated and uncooled places. Shoppers spend their dollars in stores which are comfortable.

Increased receipts will soon repay the cost of installing the systems described.

Mechanical fan systems of heating, ventilating, humidifying and cooling in factories and business offices are purchased for two reasons, among others. First, perhaps, is the fact that better finished products and lower manufacturing costs are made possible when produced in air that is correctly conditioned to meet the needs of the materials and processes involved.

Second, is the understanding that by providing air of correct purity, temperature and humidity employees are kept well, and, consequently, constantly at their work, and that the quantity of work produced is greater. If milk from "contented cows" is supposed to be superior, in the same way work from contented personnel is proved by test to be better.

These factors pave the way for greater activities by contractors who realize that a real opportunity faces them at this time.

Sales Letters That Have Pulled

NEXT to a personal conversation with the prospective patron, a personal letter is the best way to interest him in warm air heating equipment. The warm air heating contractor who can write good letters to his mailing list of prospects can keep them from forgetting him and his services. He can tell them about the latest improvements. He can set them thinking about their needs in his line.

The contractor for whom letter writing is not easy, needs to have at hand a carefully devised form of letter he can copy, with such changes as will fit it exactly to his case. The series of letters that follows comprises one for each month in the year, each made in some degree seasonal.

There are two ways of using such letters. One way is for the contractor to write them individually on his typewriter in his spare time. In that way he might be able to write an average of two a day. By doing it that way he could reach every month at least 50 people. He could take a carefully selected list of 50 names and send a letter a month to each through the year.

By following the alternate plan of having the letters printed or prepared in imitation typewriting, he could send his monthly letter to as many names as he might wish. The personally written letter makes a little stronger appeal, but the larger number covers the field thoroughly and brings more returns. In either case the letters should be prepared with the greatest care for neatness and legibility and with avoidance of cheap appearance. It costs more to have them made in high class manner on good stationery, but it is worth more.

Dear Mr. Johnson:

We have never met the man who is such a good fireman that he never lets the fire in his furnace get down or go out.

Taking care of any kind of furnace, save an oil burner, is hard work for a man and a good deal harder work for a woman.

Why not simplify the operation of your furnace by having us equip it with an Automatic Heat Regulator?

This places in the living room, or wherever it is wanted, a little device that turns the heat on and off automatically.

Fill the furnace with coal in the morning and the watchful Automatic stays right on the job all day, opening or closing the drafts as needed to keep the house temperature even.

Or the Regulator can be adjusted to turn on the drafts at any desired hour in the morning.

The Automatic Heat Regulator saves everybody time and work, by eliminating most of those trips downstairs to do something to the furnace.

Besides, it saves fuel and soon pays for itself in that way.

Ask us any questions about economical and satisfactory home heating.

Our telephone number is Main 7623.

Cordially yours,
WAYNE & BARBER.

Pet Burial Caskets Prove Profitable Side Line

A NOVEL side line of the Crescent Sheet Metal Works of Los Angeles is the construction of small sheet metal caskets for the burying of pet dogs, cats, and other animals. All of the caskets are made on order, the present volume of work running about 30 caskets per month. Nearly all of the caskets are used by the local Los Angeles Pet Memorial Park, operating a miniature cemetery for the movie colony and Los Angeles.

The caskets are made up of 24-gauge galvanized iron, seams being of the coffin lock type and soldered. The lid of the coffin is paneled and is fitted with a liner of felt to insure a close fit on the coffin. Each coffin is given an attractive appearance by an exterior spray coat of aluminum paint. In some cases the interiors are lined with satin or other material, the work being done by workers of the Los Angeles Pet Memorial Park. The filled caskets are usually brought back to the shop for a final soldering of the lid to the body, before the pets are buried.

The stock sizes are 18, 24, 32, and 48 inches long, and are oblong in shape, the depth being a few inches less than the width. According to David Elkin, manager of the Crescent Sheet Metal Works, this line is worthwhile and profitable.

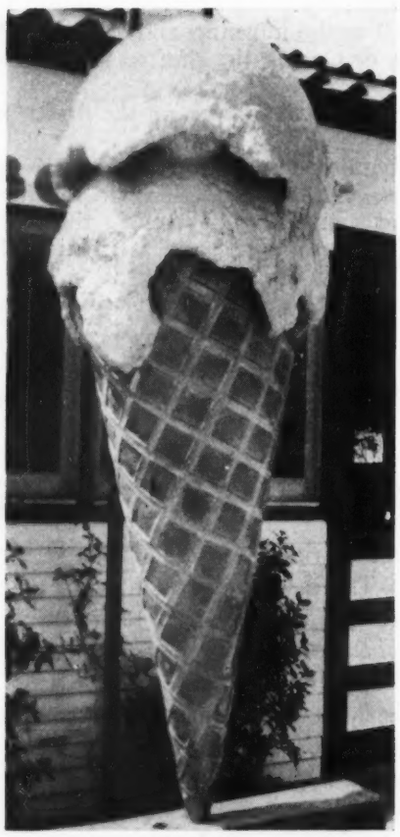
There is $6,000 worth of special sheet metal work in the ornamentation on this true-to-life Chinese style building in Pasadena

Paul Schmidt Has Found Profits in Difficult Specialty Work

ALTHOUGH Paul Schmidt of Pasadena, Calif., has a good business in the regular garden variety of sheet metal work, he has always found the best money in special jobs. The City of Pasadena and surrounding territory has many evidences of Mr. Schmidt's special skill in his chosen work.

Conspicuous among these special jobs is the $6,000 worth of effort he recently put into the famous Grace Nicholson Building at Pasadena. This building is the only building of pure Chinese architecture in America and was erected by Miss Nicholson, an importer of Chinese art pieces, at a cost of $200,000. Mr. Schmidt was employed for all the decorative sheet metal work, sheet copper being the material most largely used, the fireproof window casings, however, being fabricated from galvanized iron.

The copper work called for the heads of eight dragons, a large number of finials, all the ridge rolls for the roof, a fire screen for the great fireplace in the main lobby, and various other articles. All Mr. Schmidt was furnished were small sketches by the architects, the sketches of finials and other ornamental parts being taken from the group of imperial buildings at Peking and other Chinese palaces. Reproducing these on a larger scale in order to get a better idea of detail, Mr. Schmidt was able to make faithful copies of the originals which he had never seen. Great care had to be taken to enlarge these to scale even to a fraction of an inch as Miss Nicholson was determined to have her building exact even to the most minor decorative detail.



This ice cream cone is all sheet metal. The cone is 10 feet high and tinted in natural colors

Two months were occupied in the work on this building, Mr. Schmidt fashioning all designs himself and supervising their installation.

Just outside of Pasadena on Foothill Boulevard in front of the Hillcrest Dairy Products Company is an imitation double-decker ice cream cone, said to be the most natural in appearance of any such

cone every created. The cone is ten feet tall. Both the cone proper and the "ice cream" in it are made of sheet metal hammered to shape and tinted in the natural colors. The cone was made and placed in position for one hundred dollars.

Mr. Schmidt was given a free hand in the matter and made this according to his own design. The perfection of the design, however, has been the source of many other special jobs throughout the Pasadena territory. So well done is the great Hillcrest cone that there is not one person in a thousand who realizes that it is made of sheet metal. The average person thinks the "ice cream" is made of concrete or plaster of some kind.

Mr. Schmidt also has been able to increase the income of his shop by duplicating ancient pieces of armor. Notable is one of bronze made for the Western Consuming Company.

This close-up picture shows some of the ridge copper ornaments on the Nicholson Building. It took Mr. Schmidt two months to design and fabricate this job

This piece of armor duplicates in minutest detail the intricate design of the original. Such work is paying Mr. Schmidt excellent profits

This is an exact copy of an ancient Roman armor, is made to scale from a photograph and has some intricate detail. The design is symbolic throughout. A battle between the Greeks and Romans is depicted and it contains such details as a wounded horse, the very agony of pain showing in his eye, a soldier with one arm cut off at the elbow, two men carrying a wounded soldier from the field and other unpleasant little features of ancient butchery. The job brought Mr. Schmidt $300.

Name-plates for buildings (such as the accompanying photograph of a Salvation Army plate pictures) have proved another source of profitable income. These are usually made of bronze, copper, and sometimes of brass, but occasionally of iron.

"This type of work," says Mr. Schmidt, "not only has proved profitable, but it has a zest to it that is always found in work which goes over into the realm of the artistic. For the man who has the training and the talent for it and who gets in right it furnishes keen enjoyment and can be operated on a remunerative basis."

Mr. Schmidt's shop is well equipped with modern machinery. He learned his trade, or profession, in Europe but came to America as a young man spending several years in business in New York City before moving to the Pacific Coast.

Here is an ornamental name plate placed on a building. This is done in sheet metal and gives a good idea of the detailed work for which this shop is finding a market

National Warm Air Heating Assn. to Meet in Washington, D. C., Dec. 2 to 5

The announcement that the board of directors of the National Warm Air Heating Association to whom selection of the place of meeting was left, had unanimously chosen Washington, D. C., is being received with very general approval.

Wednesday, December 2, will be devoted to committee meetings; Thursday and Friday, December 3 and 4, to business sessions, with an evening banquet on one of these days; Saturday, December 5, to be used for sightseeing. All of the sessions are to be held in the Mayflower Hotel.

Since the dates and place were determined it has fortunately developed that President Hoover's conference of home building and home ownership will be held in Washington during the same week. There will be much of mutual interest in the proceedings of the two meetings.

The program is being arranged to furnish helpful and practical information relative to the many things which are new and almost revolutionary in the industry, the commercial side, and the immediate future of warm air heating will also be covered.

Speakers of national prominence are being selected. Several high governmental officials will address the convention.

FAN BLAST ENGINEERING

By PLATTE OVERTON
Heating Engineer

Designing Trunk and Branches to Resistance

IN our last article (AMERICAN ARTISAN, November 9) we had our trunk line designed in round pipes. We will now change these round pipes to rectangular ducts with equal friction per lineal foot. Fig. 6 gives us the table for these changes.

We must first make a survey of the situation and estimate the allowable depth of our duct. Our basement is 7 ft. 6 in. deep. We have an 8-in. I-beam to clear with two ducts and must leave 6 ft. 4 in. in the clear under all ducts for head room. The main is designed 12 in. deep and where branches must cross under beam they are made 6 in. deep. The first branch is shown in Fig. 17.

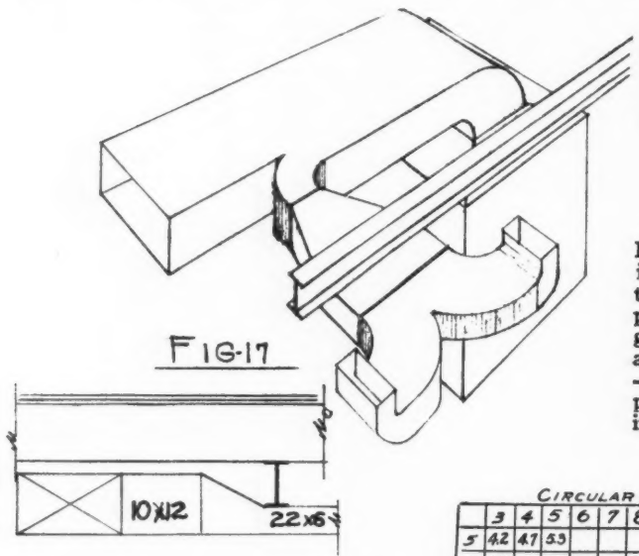


Fig. 17, at the left, shows how the branch is carried under the I-beam by a 12-inch to 6-inch transition

Two types of branch connection to main are shown in Fig. 18. Type "A" is generally used where the distance from the main to the riser is short. Type "B" is an elbow from the main at full depth and a transition section changing the size to the required stack size. For the purpose of illustration, these two types are shown in Fig. 16 on two branches. At "A" it is noted that the important area of the duct is the opening into the main. This opening must be the required proportional area as given on table, Fig. 6. Beyond this opening to the stack the area is not important if larger than the area of the main.

Following is a list of the various round pipe sizes and their rectangular equivalents:

20" round duct = Rect. duct 18 × 12
12" round duct = Rect. duct 10 × 12
9" round duct = Rect. duct 12 × 6
17½" round duct = Rect. duct 21½ × 12
16¼" round duct = Rect. duct 18½ × 12
8" round duct = Rect. duct 4¾ × 12
7" round duct = Rect. duct 3½ × 12
16" round duct = Rect. duct 18 × 12
11¼" round duct = Rect. duct 9 × 12
8½" round duct = Rect. duct 5½ × 12
6" round duct = Rect. duct 5½ × 6
8¼" round duct = Rect. duct 9¼ × 6
12" round duct = Rect. duct 22 × 6

Fig. 6, below, is an important table, used to transfer round pipe sizes to rectangular duct. There are many such tables—this one was prepared by the Lansing Dailaire Heating System

At figure "C" note that two branches with the same c.f.m. are given different areas. Refer to Fig. 19 and note that if "*a*" is equal to "*b*," areas at "*d*" and "*c*" are equal if the same c.f.m. is carried in each duct. However, in our problem "*a*" is only ½ of "*b*" and we cut the area of "*c*" slightly.

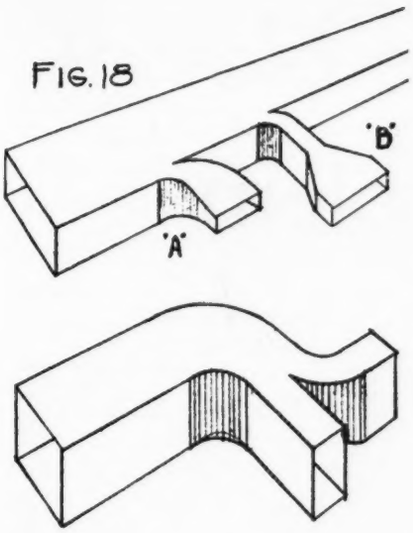
The duct system as designed here is not intended as a criterion of design. The layout may be changed to suit the various conditions.

Velocities are shown. Note that they vary from 1,120 ft. at the heater to 775 at one end of the main. Dampers are not necessary. The run may be cut off at the register in case the room is not in use.

CIRCULAR EQUIVILENTS OF RECTANGULAR DUCTS FOR EQUAL FRICTION

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
5	4.2	4.7	5.3																									
6	4.3	5.2	5.7	6.5																								
7	4.8	5.8	6.2	7.0	7.5																							
8	5.2	6.0	6.9	7.6	8.2	8.8																						
9	5.5	6.4	7.3	8.0	8.7	9.3	9.9																					
10	5.8	6.7	7.7	8.4	9.2	9.8	10.4	11.0																				
11	6.0	7.0	8.0	8.8	9.6	10.2	10.9	11.5	12.1																			
12	6.4	7.5	8.3	9.2	10.0	10.7	11.4	12.0	12.6	13.2																		
13	6.7	7.7	8.7	9.6	10.4	11.1	11.8	12.5	13.1	13.7	14.3																	
14	7.7	8.0	8.9	9.9	10.8	11.5	12.3	12.9	13.6	14.3	14.9	15.4																
15		8.3	9.2	10.2	11.1	11.9	12.7	13.4	14.1	14.7	15.3	16.0	16.5															
16		8.5	9.5	10.5	11.4	12.3	13.1	13.8	14.5	15.2	15.8	16.5	17.1	17.6														
17		8.8	9.8	10.8	11.8	12.6	13.5	14.2	15.0	15.8	16.3	17.0	17.6	18.2	18.7													
18		9.0	10.0	11.1	12.1	13.0	13.8	14.6	15.4	16.1	16.8	17.4	18.1	18.7	19.2	19.8												
19			10.3	11.4	12.4	13.3	14.2	15.0	15.8	16.5	17.2	17.9	18.6	19.2	19.8	20.4	20.9											
20			10.5	11.6	12.7	13.6	14.5	15.4	16.2	17.0	17.6	18.4	19.0	19.7	20.3	20.9	21.5	22.0										
22			11.0	12.1	13.2	14.2	15.2	16.1	16.9	17.8	18.5	19.2	19.9	20.6	21.3	21.9	22.5	23.1	23.6	24.2								
24			11.4	12.6	13.8	14.8	15.8	16.8	17.6	18.5	19.3	20.0	20.8	21.5	22.2	22.8	23.5	24.0	24.7	25.2	25.9	26.4						
26			11.8	13.1	14.3	15.4	16.4	17.3	18.3	19.2	20.0	20.8	21.6	22.3	23.0	23.8	24.4	25.1	25.7	26.3	26.9	27.5	28.1	28.6				
28			12.2	13.5	14.8	15.9	17.0	18.0	19.0	19.8	20.7	21.5	22.4	23.1	23.9	24.6	25.3	26.0	26.6	27.5	27.9	28.5	29.1	29.7	30.2	30.8		
30			12.6	13.9	15.2	16.4	17.5	18.5	19.5	20.5	21.4	22.2	23.1	23.9	24.7	25.4	26.2	26.8	27.5	28.2	28.8	29.5	30.1	30.7	31.3	31.9	32.5	33.0
32			12.9	14.3	15.6	16.9	18.0	19.1	20.1	21.1	22.0	22.9	23.8	24.6	25.4	26.2	27.0	27.7	28.4	29.1	29.8	30.5	31.1	31.7	32.3	32.9	33.5	34.1
34			13.2	14.7	16.1	17.3	18.5	19.6	20.7	21.6	22.6	23.5	24.4	25.3	26.2	26.9	27.7	28.5	29.2	30.0	30.7	31.3	32.0	32.7	33.3	33.9	34.5	35.1
36			13.6	15.1	16.4	17.9	19.0	20.1	21.2	22.2	23.2	24.2	25.1	26.0	26.8	27.7	28.5	29.3	30.0	30.8	31.5	32.3	33.1	33.8	34.6	35.3	35.9	36.5	37.1
38			13.9	15.4	16.8	18.2	19.4	20.6	21.7	22.8	23.8	24.8	25.8	26.7	27.5	28.4	29.2	30.0	30.8	31.5	32.3	33.1	33.8	34.6	35.3	35.9	36.5	37.1
40			14.3	15.7	17.2	18.6	19.8	21.1	22.2	23.3	24.4	25.4	26.4	27.3	28.2	29.1	29.9	30.8	31.6	32.4	33.1	33.9	34.6	35.3	36.0	36.7	37.4	38.0

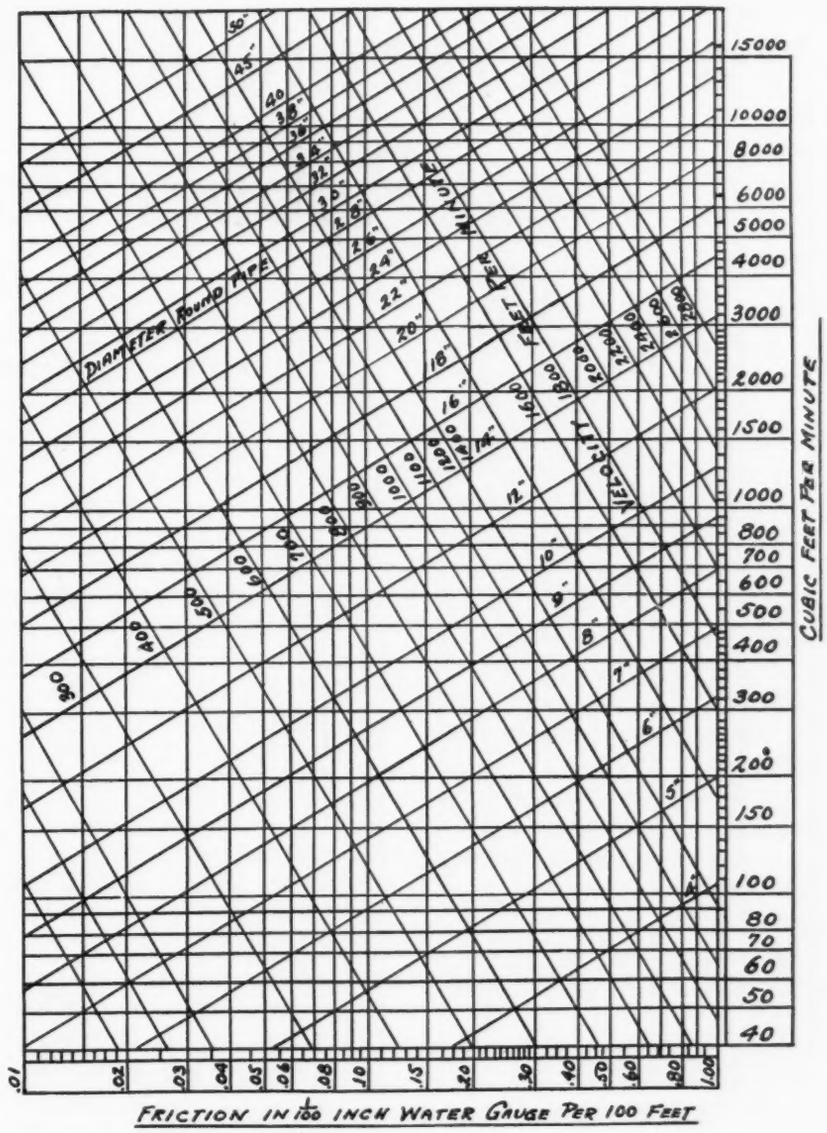
FIG. 18



This same damper in the register may be used to volume the inlet in case of a mistake on the data sheet regarding the c.f.m. requirement. Splitters must not be installed. Note that at the junction of the first branch the two important areas are 10x12 and 21½x12 and are proportional to the pressure loss. If a splitter were installed these two areas would be impossible to maintain.

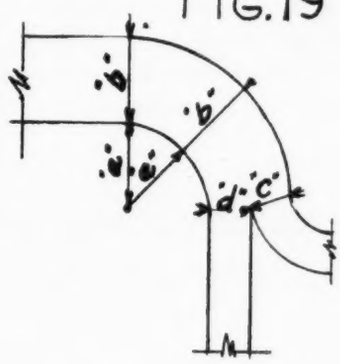
Our static pressure loss for the

(Continued on page 25)



The friction chart above is important for from it we determine the static pressure loss for the piping system

FIG. 19



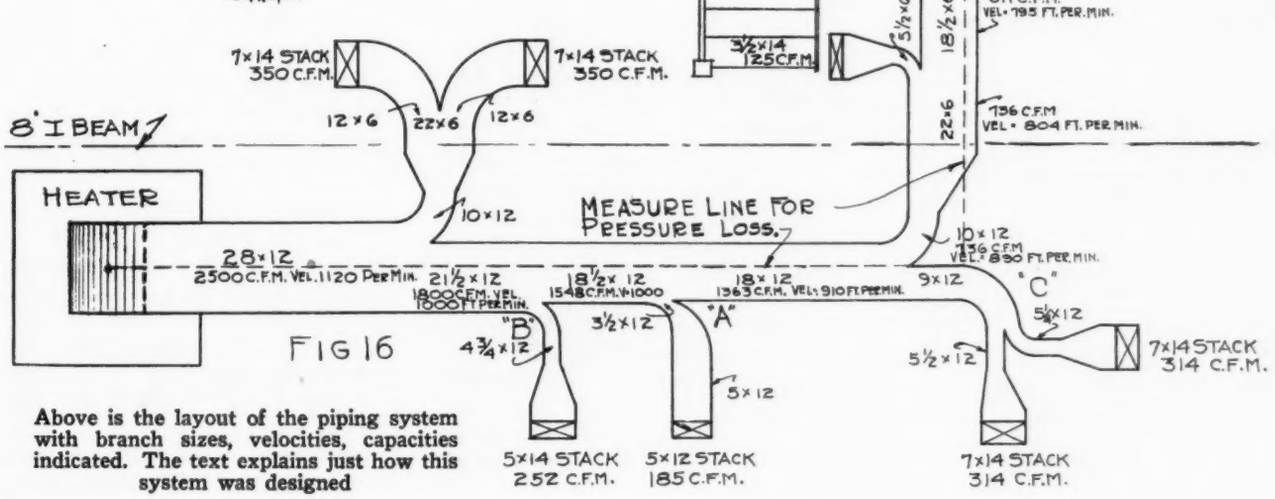

7x14 STACK 350 C.F.M.
7x14 STACK 350 C.F.M.
5x14 STA 280 C.F.M.
3½x14 125 C.F.M.
330 C.F.M. VEL.- 775 FT. PER. MIN.
611 C.F.M. VEL.- 795 FT. PER. MIN.
736 C.F.M VEL.- 804 FT. PER. MIN.
8' I BEAM
HEATER
MEASURE LINE FOR PRESSURE LOSS.
28x12 2500 C.F.M. VEL. 1120 PER MIN.
21½x12 1800 C.F.M. VEL. 1000 FT. PER MIN.
18½x12 1548 C.F.M. V=1000
18x12 1363 C.F.M. VEL. 910 FT. PER MIN.
10x12 736 C.F.M VEL.- 890 FT. PER. MIN.
9x12
"A"
"B"
"C"
5x14 STACK 252 C.F.M.
5x12 STACK 185 C.F.M.
7x14 STACK 314 C.F.M.
7x14 STACK 314 C.F.M.

FIG 16

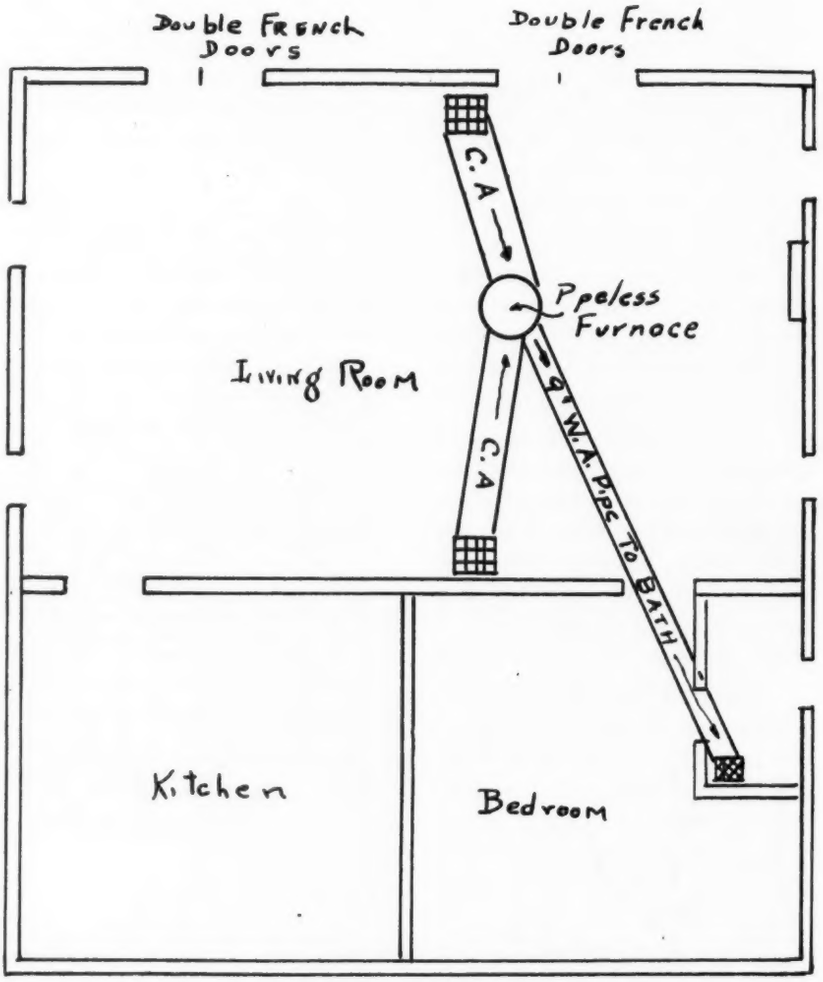
Above is the layout of the piping system with branch sizes, velocities, capacities indicated. The text explains just how this system was designed

First Solutions for the Nov. 9 Heat Robber Problem

ON page 21 of the November 9 issue, we presented a problem from a reader who was called in to heat a bathroom closed off and quite a distance from the pipeless furnace used in the house.

This reader's first solution was to run a single leader to this bath —but this leader did not furnish enough heat. The second attempt was made with a heat robber on the leader. The drawings show how this system now stands. The robber used is a flat cone, 18 inches in diameter, hung about 2 inches above the radiator and located to one side of the bonnet. This second solution is not satisfactory, either.

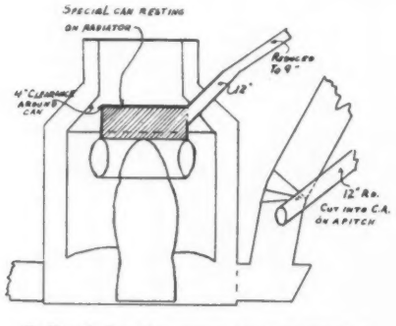
From the replies bringing solutions it is evident that the trouble lies in the robber and not in the idea. Here are some of the first solutions received in time to get the illustrations made.



This plan shows how the system is in now. The details below show the bath supply and the robber added later. Still the bath is cold. What would you do on this layout?

J. Paul Snyder, Mgr., Gibson Sheet Metal Co., Princeton, Ind.

"Regarding the heating plan of the pipeless furnace showing a heating pipe to the bathroom. There is no way to heat this room unless the contractor improves the efficiency of the plant itself. However, I would suggest that the contractor try a method which I believe will give very good results. My solution presumes he has a top radiator furnace.



J. Paul Snyder says he has used a robber of this type with good success. It is a small plenum chamber inside the casing

"First—

"Construct a large container or can that will sit on the radiator leaving the inside opening of the radiator open into the can. Make this can high enough to partly choke off the air passage to w. a. register. This is necessary to build up pressure in the can. Bring w. a. pipe through casing at a slight pitch; make pipe connection to can larger than pipe, probably 12-inch and taped to 9-inch size.

"Second—

"Change w. a. register in bathroom to side nearest furnace if bath tub is on that side. Bring pipe up partition and place register above the tub in wall.

"Third—

"Use old opening in floor for a 12-inch c. a. duct and connect this duct to the side of large c. a. pipe and not to the boot. If connected in this manner the air passing through large c. a. pipe will cause a suction on the smaller pipe.

"The owner must bear in mind that pitch is not so necessary as

that warm air in the furnace must be checked and a pressure built up before the warm air will take to the bathroom."

In order to make his explanation clear, Mr. Snyder prepared the sketch shown. This drawing shows clearly how the can is constructed and located and how the individual return line is cut into the existing return air above the boot.

Charles Herdklotz, Woodstock, Ill.

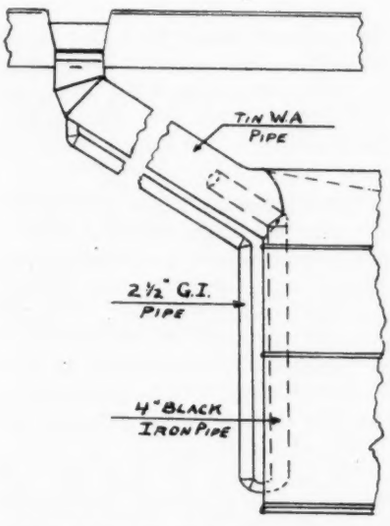
Charles Herdklotz of Woodstock, Ill., sends a brief solution which does not require illustrating. He says:

"I find that the reader has omitted a cold air return which the bathroom needs badly. Unless there is a direct return from this small bathroom, circulation will be very limited.

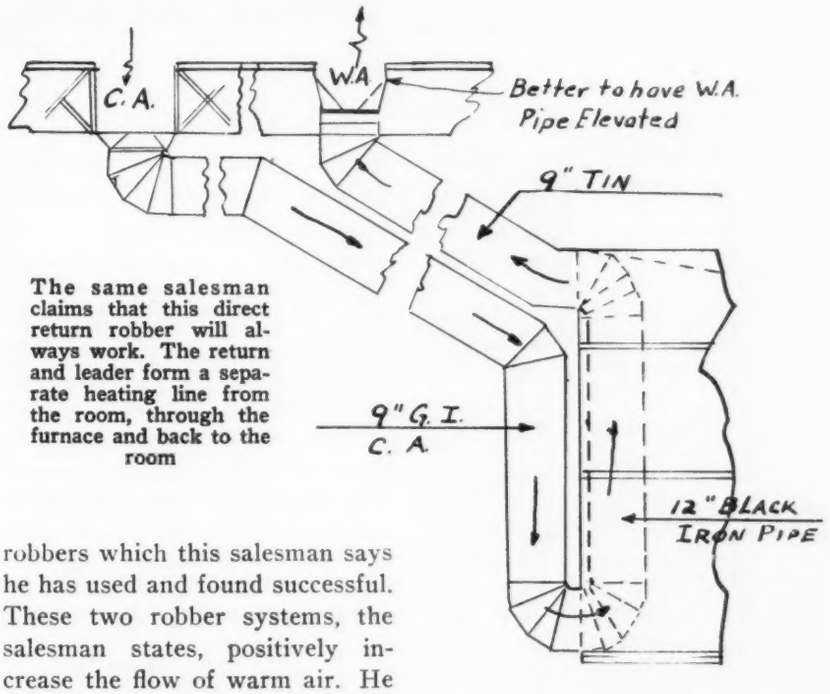
"If the reader will connect a 9-inch or a 10-inch cold air return direct to the furnace his trouble will be over. I would also suggest that his robber funnel should have been made to fit directly over the center of the furnace."

A Salesman

A very interesting and also explicit solution was received from a salesman in Galva, Ill. This explanation is also accompanied by two excellent illustrations of heat



A salesman reader submits this as a type of robber which operates on the injector principle. Air is bled from the lower side of the leader, passed through the casing and injected into the leader outside of the bonnet



The same salesman claims that this direct return robber will always work. The return and leader form a separate heating line from the room, through the furnace and back to the room

robbers which this salesman says he has used and found successful. These two robber systems, the salesman states, positively increase the flow of warm air. He also says that if the warm air register can be located about three feet or higher above the floor, the air flow will be even better because this location gets the warm air stream away from the flow of cold air out of the room.

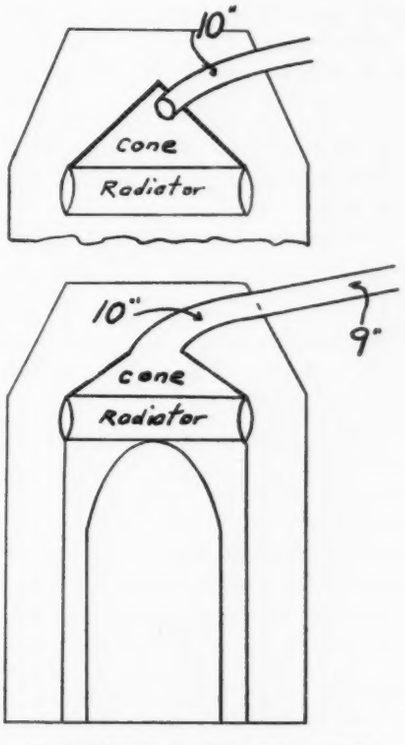
The drawings show clearly just how these two types of robber are built. In one, a 9-inch return is brought out of the room and down to the casing, then into the casing with a double elbow where it connects into a 12-inch black iron vertical pipe which passes up the entire height of the casing and out the side of the bonnet.

Outside the bonnet a reduction is again made to 9-inch pipe which forms the leader to the bathroom.

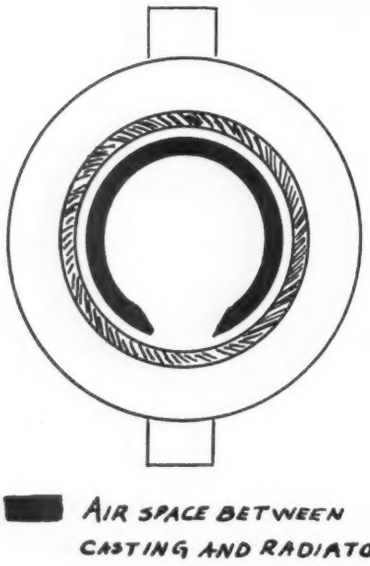
The second form of robber is of the bleeder type. This eliminates a return grille and a return duct. The small bleeder pipe is taken out of the leader run at a point along the pipe where the cold air usually settles. If the movement of air is likened to the movement of water, this position can be pictured. The bleeder is then taken to the bottom of the casing and connected into a 4-inch black iron pipe which again passes vertically up through the casing and out the bonnet through the warm air pipe supplying the bathroom. The pipe is cut off like a stub inside the leader. Just how the connections are made is shown in the sketch.

E. J. Johnson, Racine, Wis.

From E. J. Johnson of Racine, Wisconsin, comes another sketch



E. J. Johnson sends a cone robber. He says his cone should fit down tight on the radiator. The leader can be taken out of the apex or out of the side as shown



This drawing shows how Mr. Johnson's cone would look from the top. It covers the space between casting and radiator completely

and an explanation of how the robber should be changed so that it will work more positively Mr. Johnson says:

"Having recently tried four different types of robbers on a job almost the same as the one you publish, I finally hit on the robber which I show in the drawing. On the job I had, this robber worked to perfection. However, a small cold air or a baseboard vent may be necessary to stimulate circulation inside the room."

The drawings submitted show two means of taking the pipe off the robber and a top plan showing how the robber sits on the radiator. Regarding the robber, Mr. Johnson says:

"Make a cone to sit directly on the top of the radiator and large enough to completely cover the center air space, that is the air space between the casting and the inside of the radiator. Take the pipe out of the cone as near the top as possible and right out of the top is best if you have enough height inside the bonnet.

"The pipe off the robber and through the casing ought to be 10 inches in diameter and then reduced to the 9-inch size outside the bonnet. The top plan I send shows the area of the space to be covered and the size of the cone necessary to cover this space."

Chris Dingler, Sterling, Ill.

From Sterling, Illinois, Chris Dingler, of Dingler's Sheet Metal Works, writes:

"Here is a solution for your robber in a pipeless furnace which we have used in any number of cases with perfect results regardless of how long the robber leader pipe may be.

"Use a robber large enough to sit on the radiator of the furnace, say 22 or 24 inches in diameter, and connect the leader pipe either from the very top or from the side. The cone should sit right down on the radiator."

William Scott, Bradfordwoods, Penna.

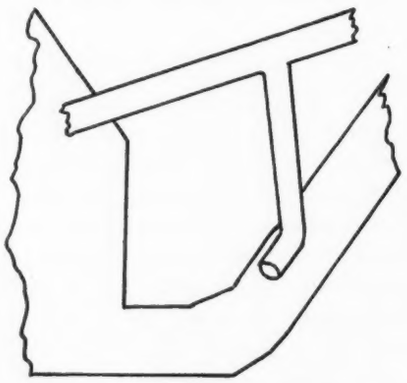
William Scott, who represents Waterman-Waterbury in his part of Pennsylvania, sends two suggestions, one covering the use of a robber in a steel furnace. Here is his letter:

"In answer to your S O S, I think that if the owner is getting any heat into his bathroom, but not as much as he wants, the amount of heat supplied can be materially increased by running a pipe, as the reader who wants help suggests, from the warm air leader into the nearest cold air pipe. How I suggest doing this appears on a sketch. However, the pipe need not be more than 4 inches in diameter.

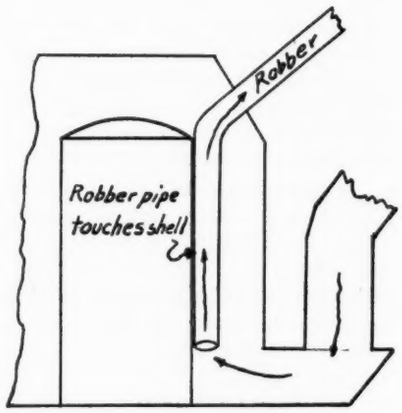
"The function of this pipe is to drain out any cold air which may lie along the bottom of the long and rather flat bathroom leader. Just to show how simple some of these bleeders are, practically the same result can be obtained by cutting a 4-inch hole in the bottom of the bathroom leader, but most house owners would object to this and it doesn't look very mechanical.

"If the furnace has a doughnut radiator make a conical cap large enough to cover the radiator and connect the bathroom leader into the top of this cone.

"If the furnace is steel, extend the warm air leader down to the grate area inside of the casing as shown on another sketch. Make this pipe of black iron and large enough so that when it is in place it will touch the shell over its full length and also rub along the radiator for as long a distance as possible.



William Scott says he has built a robber like this. The leader is bled of cool air and the inner end gathers hot air through a cone over the radiator. The bleed pipe need not be larger than 4-inch



Mr. Scott also sends in this suggestion for use in a steel furnace. The robber pipe should be of black iron for it touches the steel shell and consequently gets just as hot as the shell. The robber should be cut off at grate level

"With this kind of a robber the air from the cold air boot enters the casing below the robber pipe, passes up through the robber pipe and out the leader. The air passing through the robber pipe is heated both by convection and by conduction, for the pipe touching the furnace shell gets as hot as the shell.

"If necessary, a small fan can be placed in the farm air pipe to boost the air into the bathroom. Don't use an ordinary desk fan for these won't stand the heat and burn up in a short time."

We have more solutions. These will appear next issue.

Whether You're Selling Oil Burners, Air Conditioners Or Just Plain Furnaces, Don't Overlook

By W. J. SMITH
Vice-Pres. American Oil Burner Ass'n
Vice-Pres. Cleveland Steel Products Corp.

THE FUNDAMENTALS OF SELLING

MANY manufacturers or engineers and, yes, dealers—men who are, and have always been, primarily "production-minded" or engineering-minded" or "mechanically-minded"—are too much inclined to believe that prospective purchasers are just as much interested in, and can be made just as enthusiastic about, the mechanical superiorities of a product as they are.

The actual facts of the case, however, are that average people—the people to whom we must sell, if we are to continue in business—know but little, and care less, about "gadgets and whatnots." Instead, the first thing they want to know is what a product will do for them, what it will mean to them in terms of increased convenience and comfort, in pride of ownership and value. In short, today people buy service—and they always will. The product itself—how it is made—is entirely incidental.

This is a fundamental of selling any product. Today very few organizations should lose sight of it.

Study the history of any industry producing the so-called "luxury" products—automobiles, radios, electric refrigeration, products like vacuum cleaners and washing machines—and you'll discover that the selling methods in almost all of them went through this evolution.

During the first selling phase of these products, great stress was placed on the various mechanical parts that contributed to the performance of the product as a whole. Automobile selling affords a striking example. Many of us can remember when the Continental motor or the Firestone tires or a certain make of carburetor were great "selling points." Today, motors and tires and carburetors are taken for granted by manufacturers and buyers alike. The things that sell automobiles are comfort and speed and beauty and value. This has been conclusively proved the effective way to sell automobiles.

Oil burners are no different from automobiles or radios or electric refrigerators in the way they can be most resultfully sold.

The advantages of oil heat as, every oil burned man knows, are comfort, convenience, labor-saving, healthfulness, cleanliness, additional living or recreational basement quarters and economy of operation.

Most oil burner advertising today has advanced to the final stage—that of selling one specific make of oil burner. Practically every oil burner advertiser has assumed—and correctly, I believe—that the desirability of oil heating has been pretty firmly implanted in the public mind and that his advertising should be devoted, first of all, to "plugging" his own product.

No oil burner advertising, however, as I view it, should entirely disregard stressing the advantages of oil heating. I don't believe the public has been "educated" yet to a point of universal acceptance.

The point I make is that actual selling—the efforts to persuade the prospects that he or she wants your product in preference to any other—must start with selling the benefits—the priceless advantages—of heating with oil. And I emphasize again the fact that "bolts and nuts" mean nothing to buyers unless the salesman can present mechanical features in terms of service.

Once the salesman has made sure that the prospect fully realizes what oil heat will mean to himself and his family—once the salesman has convinced the prospect that he wants oil heat—more than half the selling job is done.

From this point a good salesman—one who knows his product, the company who makes it and the dealer who sells it, "inside and out" and "backward and forward"—can demonstrate the superiorities of his particular product, and close the sale, in a minimum of time.

In oil burner selling, let's not stray too far afield from the fundamentals. It is essential to impress prospects with the advantages of your own product, of course—but I believe that, for a good while to come, the time for selling your own specific make of oil burner is after you've convinced the prospective buyer that he can't do without oil heat.

FAN BLAST ENGINEERING

(Continued from page 21)

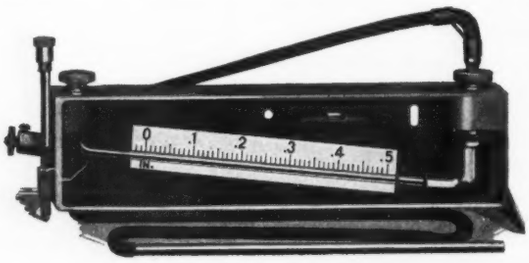
piping supply system will be .0726. We find this by measuring the length of our duct plus 10 ft. for each elbow equals 66 ft. for our problem. Refer to Fig. 20 friction chart and find 2,500 c.f.m. on right hand edge, follow to the left until intersecting with 20-in. pipe line, drop to the bottom of chart and find .11-in. loss for 100 ft. of duct. $11 \times 66 = .0726$ for our duct.

NEW ITEMS and NEWS ITEMS
From and about the Manufacturers and Jobbers

New Ellison Portable Draft Gage Set

The Ellison Draft Gage Company, 214 West Kinzie Street, Chicago, has designed and is manufacturing a new type inclined draft gage.

A feature is the elimination of a separate carrying case. The aluminum gage casting is rectangular and with the removable steel cover serves as a self enclosed case in which are carried all fittings except the rubber tubing.



This new set is guaranteed to be accurate, error, if any, not to exceed .02 lineal inch at any point of the scale.

The gage is of the same material and finish as other Ellison inclined draft gages and is equipped with the same leak proof fittings for carrying the oil in the gage. The casting is of aluminum, polished and buffed. The cover is of cold rolled steel stamping, chromium plated.

The tripod for mounting is furnished.

The scale has 1-inch sliding movement for quickly setting zero by screw adjustment, with set screw for locking zero setting. The level glass is of extra heavy wall without lines. Cut lines weaken the glass and have been discontinued. Unrestricted accessibility of the knurled head of the leveling screw for hand adjustment above the gage is an important design feature.

The sets are complete with necessary fittings for suction or pressure drafts, including draft tube, rubber tubing, nipple reducer, goose neck and oil. Cleaner, for cleaning indicating tube if necessary after long usage, is also furnished.

Sets are available in ranges of ½ inch, ¾ inch, 1 inch, 1½ inch and 2 inch.

✦

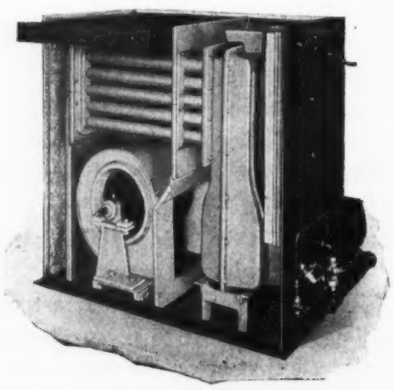
American Foundry & Furnace Self-Cleaning Furnace Catalogue

American Foundry and Furnace Company, Bloomington, Ill., have ready for mailing to dealers a new four-page folder explaining and illustrating the new Self-Cleaning Furnace. The company states that a feature of the folder is the showing of the June-Aire Blower Furnace Unit on the front page. This is the first time, the company says, that the blower furnace unit has been shown as a part of their furnace circular.

This radical departure was taken only after a thorough canvass of the company's dealers had been made to ascertain whether or not such a presentation of the blower furnace unit should be made.

The folder shows by text and illustration all the features of the Self-Cleaning Furnace. A cut away section shows each feature with a short tabulation of features connected with the part discussed by colored arrows.

The circular also announces for the first time the new Model B June-Aire unit. This is a square cased unit with the proper inner housing for forced air work. The outside casing is red or olive green trimmed with black and



is furnished complete with controls, automatic humidifier, filters, blower and motor.

Richardson & Boynton Open New York Display Room

Richardson & Boynton Company, for 85 years manufacturers of heating and cooking apparatus, have opened a new New York branch and general display room on the fifth floor of 244 Madison Avenue.

The change from the old quarters at 260 Fifth Avenue, which they had occupied for ten years, was made imperative, the company states, by the steady and continued growth in the volume of business. This growth has been in the face of world-wide business depression.

The new quarters cover an area of 9,000 square feet floor space. Here the executive offices are located, as well as headquarters for the New York branch, and a large, well lighted and conveniently arranged display space.

✦

Armco Begins Second Radio Season Oct. 19

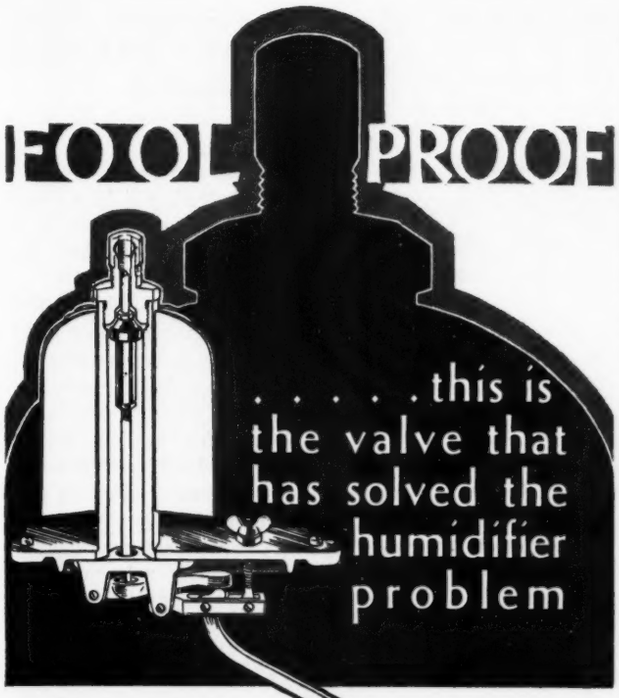
This winter the well-known radio voice of Armco—The Armco Concert Band—will be heard 'round the world. During previous broadcasting seasons so many requests were received from Latin-America and other foreign countries that it was decided to broadcast these programs over short wave station W8XAL, in addition to the 50,000-watt transmitter of Station WLW in Cincinnati.

The first radio concert was held on Monday night, October 19, between 9:00 and 9:30 Eastern Standard Time. On that night the radio audience heard Geo. M. Verity, chairman of the board of The American Rolling Mill Company, speak on the subject, "There Can Be No End to Progress."

One of the special features of the broadcasting season will be the playing on each program of one of the competition numbers chosen for the high school bands in the different states by the board of the National High School Band Contest. The same selections will later be played by the various high school bands in their 1932 contests.

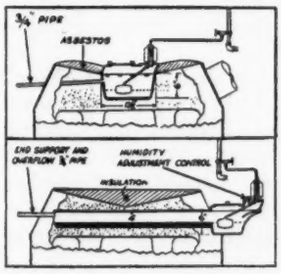
Armco's radio season will extend over a period of 26 weeks; all broadcasts will be given on Monday nights, at the time mentioned above.

FOOL PROOF



VALVES lime up for two reasons only . . . heat and drip. The Columbus Humidifier has the **ONLY VALVE** that has completely eliminated these difficulties. The fin-cooled valve opens full with a flushing action making it impossible for lime to collect on the valve seat. When the water reaches the required level it is instantly shut off . . . there is positively **NO DRIP.**

Float will not leak . . . made of extra heavy copper and will withstand 1500 degrees of heat.



Here, at last, is a humidifier that you can safely recommend. It is absolutely trouble proof.

Let us hear from you **AT ONCE** if you are interested in the profitable business which is waiting for **SOMEONE** in your territory.

Manufactured by The Columbus Humidifier Co.
One East 5th Ave., Columbus, Ohio

COLUMBUS HUMIDIFIER

BALANCED

WISE PEOPLE BUY WISE FURNACES
LESS FUEL—MORE HEAT

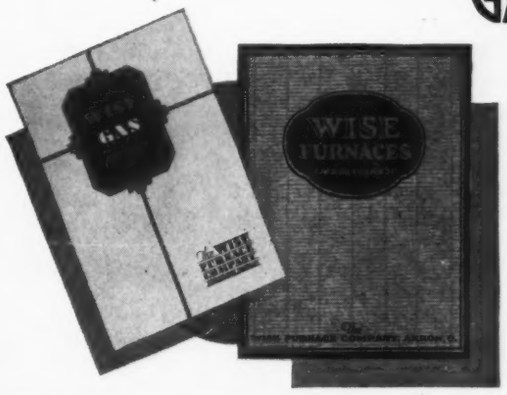
THAT'S WHY WISE
MEET ALL COMPETITION WITH

The WISE-LINE

2 WISE
BIG 3 SERIES
4 WISE

But be wise—write for these 2 WISE Books. They tell you of a reputation gained through the manufacture of quality, serviceable merchandise.

WISE GAS



THE WISE FURNACE CO.
AKRON - - - OHIO

WISE DEALERS SELL WISE FURNACES

Say you saw it in AMERICAN ARTISAN—Thank you!

Only Original Soot Destroyer Leaflets

The Saginaw Salt Products Company, Saginaw, Mich., manufacturers of the product known as Only Original Soot Destroyer, have two very interesting testimonial leaflets telling how the product has increased the efficiency of heating plants.

One of these leaflets contains a number of testimonials from engineers who have used the product to clean their boilers and furnaces. This leaflet also contains the diagrams shown here.

These diagrams show graphically what losses occur when soot accumulates in the heating plant.

The other leaflet may be left with home owners. The leaflet can and has been used by contractors canvassing for cleaning or repair work and has been found an excellent method of getting the home owner's attention and also getting into the basement to see the plant.

Copies of these leaflets can be secured by writing the company.

✦

Wisconsin Announces 1932 Program

The 1932 convention of the Sheet Metal Contractors Association of Wisconsin will be held in the New Pfister Hotel, Milwaukee, Wisconsin. The date of the convention is February 1 and 2, 1932.

The program submitted by Paul L. Biersach, Secretary, shows that the first day will be given over largely to warm air heating and the second day to roofing and sheet metal. Following are some of the important addresses scheduled for the convention.

Handling Local Troubles, E. B. Langenberg, Saint Louis.

Air Conditioning the American Home, J. C. Miles, Cleveland.

Sheet Metal Cornice, Skylights and Metal Ceilings, R. S. Schmieder, Milwaukee.

Slate Roofing and Its Application, W. S. Hays, Sec'y., National Slate Association, Philadelphia.

Tile Roofing and Its Advantages, C. K. Sanborn, Ludowici Celadon Company, Chicago, Illinois.

Asbestos Shingles for Roofing, J. B. Stevens, Building Materials Dep't. Johns Manville Corporation.

Prepared Roofing, E. R. Besser, The National Roofing Assoc., Chicago, Illinois.

Proper Application of Prepared Roofing, E. A. Tuscher, Editor of "Roofing" of Chicago.

Tin Roofing, D. T. Haddock, American Sh. and Tin P. Comp., Pittsburgh.

The annual entertainment will consist of a dinner, dancing and entertainment. The ladies will be entertained throughout the convention by a special committee.

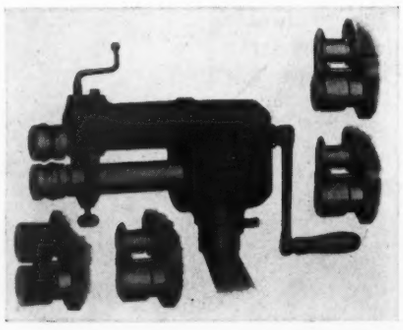
✦

Niagara Announces Universal Rotary Machine

A new hand operated machine with interchangeable rolls for burring, turning, wiring, crimping and beading sheet metal is announced by the Niagara Machine & Tool Works, Buffalo, N. Y. This Universal Rotary Machine economically performs the operations usually requiring five single purpose machines. It conserves bench space, is fast in operation, and is built for real service.

Frame is one piece entirely enclosing gears and shafts. Scale and grit is excluded, adding life to the machine. All bearings are large, accurately fitted, and have provision for easy and adequate lubrication.

Drive is direct for rapid production. Steel connection gears are machine cut and are quiet and smooth in operation. Mounting is such that gears



will not come out of mesh when top roll is in extreme upper position.

Lateral adjustment of the upper shaft is provided for aligning upper and lower rolls. Up and down movement of the upper roll is accomplished by a direct acting one piece forged crankscrew.

Heating & Ventilating Exposition Will Show All Latest Equipment

The Second International Heating and Ventilating Exposition to be held at the Auditorium Annex, Cleveland, January 25 to 29, 1932, will be a huge living catalog, showing two years of progressive development in heating, ventilating and air conditioning.

Every purchaser of products and equipment in this fast growing field will have a better understanding of what is transpiring within the industry after visiting the comng exposition.

Recent demand for weather making equipment of every kind has stimulated manufacturers to greater effort in this field. Insulation, instrument, motor and accessory equipment manufacturers have solved many new questions touching on air conditioning. The warm air industry is rapidly adjusting itself to a wider participation. Recent modifications and new innovations will be reflected in a special section devoted to warm air heating.

National Warm Air Heating Association—December 3, 4 and 5, 1931, at Mayflower Hotel, Washington, D. C. Managing Director, Allen W. Williams, A. I. U. Building, Columbus, Ohio.

American Society of Heating and Ventilating Engineers—January 25-28, 1932, at Cleveland, Ohio. Secretary, A. V. Hutchinson, 51 Madison Avenue, New York City.

National Association Sheet Metal Contractors, United Roofing Contractors, Roofing Division of National Slate Association — January 25-28, at Brown Hotel, Louisville, Kentucky. W. C. Markle, secretary-treasurer, 1604 Law and Finance Building, Pittsburgh, Penna.

International Heating and Ventilating Exposition—January 25-29, 1932, at Cleveland Auditorium, Cleveland, Ohio. Manager, Charles F. Roth, International Exposition Company, Grand Central Palace, New York City.

American Society of Refrigeration Engineers—January 25-29, 1932, at Hotel Cleveland, Cleveland, Ohio. Secretary, David L. Fiske, 37 West 39th Street, New York City.

Sheet Metal Contractors' Association of Wisconsin — February 1-2, New Pfister Hotel, Milwaukee, Wisconsin. Paul L. Biersach, secretary, 418 Metropolitan Block, Milwaukee, Wis.

!!!! DON'T send customers elsewhere!

SELL and install your furnaces *complete* with automatic heat regulation. Don't let someone else get the substantial profits from this equipment—*profits that should be going to you.*

When you sell MASTER Heat Regulators you sell what people **want**—the convenience of automatic heat control and the greater comfort and economy of even temperature.

MASTER HEAT REGULATOR

TYPE 22

Full Electric—operates instantly when heat changes ONE DEGREE or less, as set. Simple, rugged construction gives years of accurate, dependable service.

Type 22, with Full Electric Motor, list price, $55. Same, with 8-Day Jewelled Clock Control, $80.

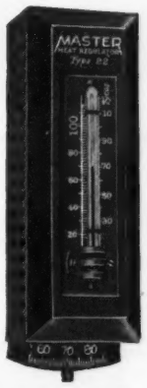
Type 44, Gradual Operation of dampers or valves, prices on request.

Your big discounts from our list prices insure handsome profits on every installation. *Write us today!*

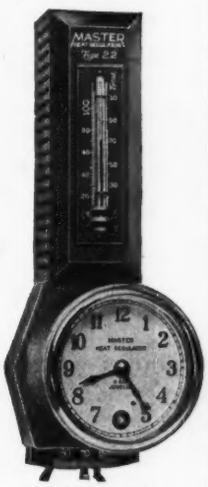
White Mfg. Co.

2362 University Avenue
St. Paul Minnesota

MASTER Motor, *Full Electric*



Type 22. Full Electric Model Without Clock Control, $55



Type 22. Full Electric 8-Day Jewelled Clock Model, $80

EFFICIENT HEATING

"AFCO" Furnaces

Make the Correct Installation a Well Balanced Heating Plant

There can be no compromise in the selection of the furnace—it either makes the correct installation an efficient or an inefficient heating plant. The difference between a satisfied and a disgruntled customer. Satisfied customers build your business.

"AFCO" and "THERMO" furnaces will help you to make every installation a business builder. Each type of furnace is designed for a specific type of installation—there's no guess work—proved performance simplifies your furnace buying.

May we send you full information about "AFCO" and "THERMO" furnaces? There is no obligation. Write today—you will receive it promptly.

"AFCO" Furnaces — Correct Installations

AFCO

TRADE NAMES REGISTERED U.S. PATENT OFFICE

THERMO

American Furnace Company

2719-31 Morgan St. St. Louis, Mo.

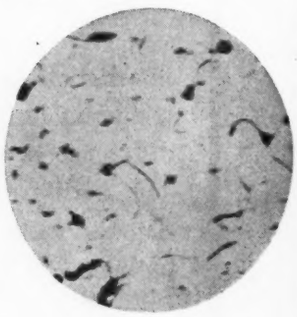
MANUFACTURERS OF

"AFCO" Boiler Plate Furnaces "Thermo" Cast Furnaces
"AFCO" Deluxe Healthful Heating Units
"AFCO" Duo-Blo Industrial Units
"Thermo" Gas Furnaces

A Microscope Does Detective Work

to show you hidden advantages of 'Lectroprocessed furnaces

A chain is no stronger than its weakest link. Look at ordinary cupola iron through the microscope. See the black spots—free carbon—evidence of strength sapping.



Now look at the evidence for 'Lectroprocessed iron. Magnified 200 times the metal is seen to be dense and of even strength. How little free carbon there is. Superior castings are the result. Write for all the story.

Brillion Furnace Co.
Brillion, Wis.

America's only 'Lectromelt Furnaces

RETURN THIS AD. And We Will Tell You How to Seal Leaky Furnaces Without Tearing Them Down.

A furnace joint is nothing more than a large crack,—if a mud cement will not seal a crack, it is not satisfactory for sealing a joint. METALUTE (Plastic Iron) seals cracks, therefore it will seal furnace joints and will permit the furnace to be taken apart, if necessary.

JUST SAY. Ship half-gallon METALUTE (Plastic Iron) at $2.40. Satisfaction Guaranteed.

COLOR-BESTOS ASBESTOS IN PAINT FORM
FIREPROOF · OILPROOF · ACIDPROOF
Better than asbestos paper

TECHNICAL PRODUCTS COMPANY
IN-SA-LUTE CEMENTS · SAUER-EISEN · ADHESIVES COMPOUNDS
Pittsburgh (Sharpsburg Station) Pennsylvania

THE WORLD'S LARGEST MANUFACTURERS OF STEEL FURNACES

LENNOX FURNACE CO., INC.
MARSHALLTOWN · IOWA
SYRACUSE · NEW YORK

TRADE **B B** MARK

"SHUR-LOCK" CONDUCTOR PIPE
"E-Z FIT" EAVES TROUGH
EAVES TROUGH HANGERS
"QUAKER CITY" MITERS
END PIECES, CAPS AND OUTLETS
PIPE HOOKS
PIPE FASTENERS
CONDUCTOR HEADS
ORNAMENTAL CONDUCTOR STRAPS AND ENDS

Look for B. B. on Every Piece—it is a Mark of Quality

SOLD BY LEADING JOBBERS EVERYWHERE

BERGER BROS. CO.
229 to 237 Arch St. Philadelphia, Pa.
Western Office: 140 So. Dearborn St., Chicago

Install **ÆOLUS** *Improved* **VENTILATORS**

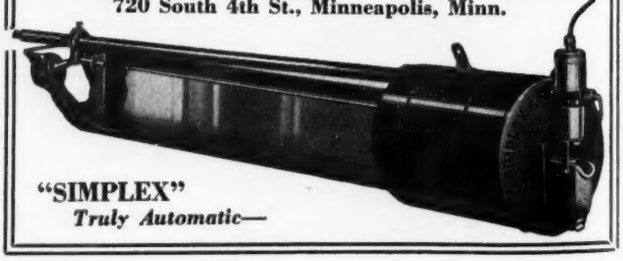
FOR industrial buildings, schools, homes, theaters, etc. Made in 14 different metals. Constant ventilation—no noise—no upkeep.

ÆOLUS DICKINSON
Industrial Division of Paul Dickinson, Inc.
3332-52 South Artesian Avenue
Chicago, Ill.

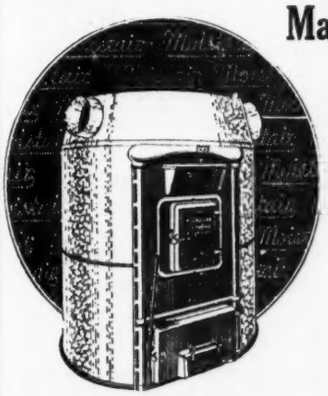
FURNACE MANUFACTURERS KNOW "SIMPLEX" VALUES

That's why daily more manufacturers are adopting SIMPLEX as the standard humidifier. It will pay you to investigate.

SALLADA MANUFACTURING CO.
720 South 4th St., Minneapolis, Minn.



"SIMPLEX"
Truly Automatic—



Make Money--Now

selling

ROUND OAK FURNACES

Let us help you—Write for details

ROUND OAK FURNACE CO.
Dowagiac, Michigan

Order Only Genuine

Agricola

REPAIR PARTS

Only genuine AGRICOLA Repair Parts assure perfect fitting castings. Prompt shipments.

AGRICOLA FURNACE CO., Inc.
Gadsden, Alabama
Offices in principal cities

AMERICA'S PERFECT HEATING UNIT

Improved

MELLOW FURNACE

The furnace with selling features that count

Write for Full Particulars

LIBERTY FOUNDRY CO.
7600 Vulcan Street St. Louis, Missouri

WIRE DROP HANDLES for FURNACE DOORS

Furnished Nickel Plated in Following Lengths:
2⅝" - 3⅛" - 3⅜" - 4½" - 5½"

We also manufacture a complete line of Furnace and Stove Trimmings—such as Pokers, Lifters, Scrapers, Shovels, Cranks, Shakers, Lever Handles, Turnkeys, Knobs, Air Mixers, Register Screws, Gas Stove Fittings, Valve Wheels, Furnace Regulators, etc.

Write for Samples and Prices

THE FANNER MFG. COMPANY
Brookside Park CLEVELAND, OHIO

The Niagara De Luxe

Every Wanted Feature:

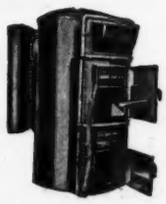
Handsome appearance; quick, easily controlled heat; fuel economy; absolute reliability—simple, trouble proof assembly—and REPUTATION!

Complete air-conditioning when desired. Write for Folder No. 101

The Forest City Foundries Company
2500 West 27th Street Cleveland, Ohio

NIAGARA
WARM AIR FURNACES

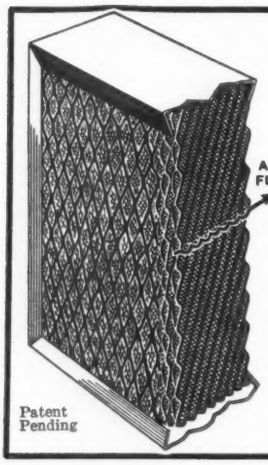
WESTERN



The Western Steel Furnace has made many friends among your prospective customers and will make many more if you show them its numerous advantages.

Write for information

WESTERN STEEL PRODUCTS CO.
130 Commonwealth Ave. Duluth, Minn.



KLEENAIRE FILTERS

Correct in Design

Air Reversal Operation Means High Efficiency and Low Resistance.

Non-Matting. Rustproof. Can Be Used Dry

Write for Details

Kleenaire Filter Co.
Stevens Point, Wis.

THE one **direct** hook-up between **you** and your **customer** is SYMONDS REGISTERS.

Say what you will—business originates with the **ultimate** consumer. Y not know this great business-getting register?

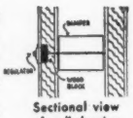
"It's different than all the rest"

Write for Our New Catalog—No Better Time Than Now

SYMONDS REGISTER CO. 3117-23 Minnesota Ave. ST. LOUIS, MISSOURI

YOUNG REGULATOR

A Locking and Indicating Device for Air Conditioning and Ventilating Systems



Sectional view of wall showing damper

Controls the volume of air flow through duct—the simplest and most effective method of controlling and showing position of volume damper. Positively tamperproof. Made of rust-resisting metals. Exclusive patented features. Write for catalog.

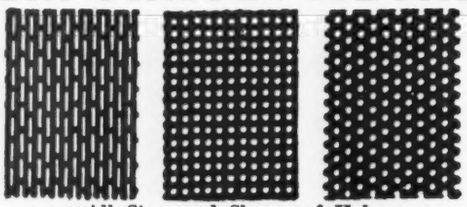
THE YOUNG VENTILATING CO.
2703 Woodland Avenue · Cleveland, Ohio

The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.

A fuel saver and generating machine of the finest quality made at the price.

GEO. W. DIENER MFG. CO.
404 North Monticello Ave. Chicago

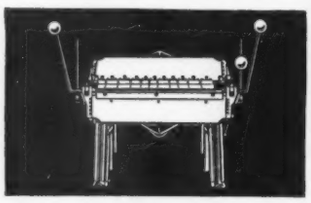
PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL

THE HARRINGTON & KING PERFORATING CO
5649 FILLMORE ST.-CHICAGO, ILL., U. S. A.
NEW YORK OFFICE 114 LIBERTY ST.

CHICAGO


Box and Pan Brake

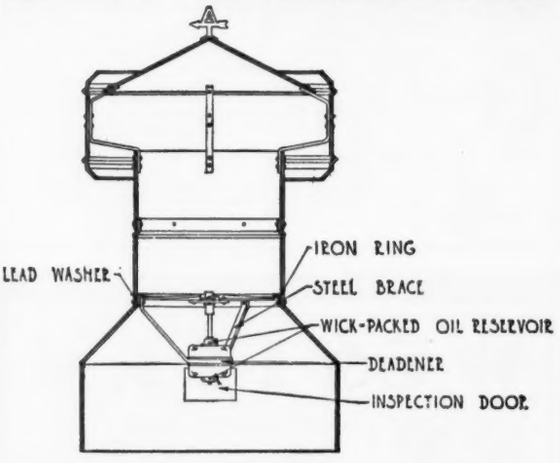
Power Squaring Shear

STEEL BRAKES—PRESSES—SHEARS

DREIS & KRUMP MFG. CO.
7404 LOOMIS BLVD. CHICAGO

JORDAN AERO VENTILATION

-DIRECT CONNECTED- FAN VENTILATOR



A Unit for greater efficiency.
Combining gravity, ventilator and fan action.
Eliminating wind and weather hazard.

Backed by a complete engineering service

PAUL R. JORDAN & CO.
630 South Delaware St. Indianapolis, Ind.

Say you saw it in AMERICAN ARTISAN—Thank you!

FURNACE PARTS

A Pot and Grate for Every Make.

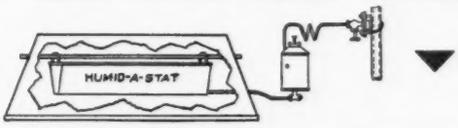
Prompt and Complete Shipments

DES MOINES STOVE REPAIR CO.
Des Moines, Iowa

Since 1869

STOVE & BOILER PARTS

CLARM



HUMID-A-STATS -:- WATERSTATS
"They Do the Trick"

The unique design is the Secret Cold Valve operation inside a Water-Sealed Air Chamber. Let us tell you more.

CLARM MECHANICAL DEVICES COMPANY
410-12 South Elizabeth St. Lima, Ohio

SOOT!

The Greatest of Heating Troubles

"Only Original Soot Destroyer" is not an experiment. On the market 20 years. Removes soot, improves draft, keeps homes cleaner, saves fuel. Prepared for stoves, furnaces and industrial boilers.

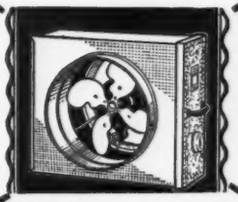
LIVE AGENTS WANTED

Saginaw Salt Products Co.
Saginaw, Mich.

Let This Unit Make Year Around Sales for You!

A-C

Thermo-statically controlled **Automatic HEAT BOOSTER**

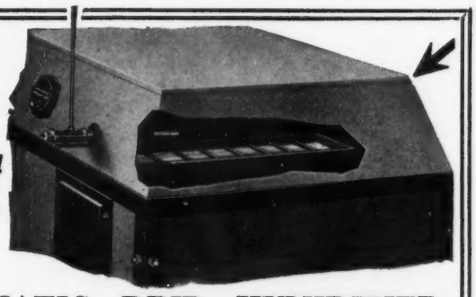


Write for full information and name of nearest jobber

EASY TO INSTALL
EASY TO SELL

A-C MANUFACTURING CO.
417 Sherman Avenue Pontiac, Illinois

For Correct and Controlled Humidity



AUTOMATIC DRIP HUMIDIFIER

Here's the ***different*** Humidifier you've been looking for. Simple, foolproof, reliable. Offers real sales possibilities. ***Investigate.***

AUTOMATIC HUMIDIFIER COMPANY
Cedar Falls, Iowa

It's **Non-Porous**

LASTIK

SET YOUR NEXT JOB WITH LASTIK

YES

WAMPUM BRAND FURNACE CEMENT

LASTIK PRODUCTS COMPANY, Inc.
OLIVER BLDG. PITTSBURGH, PA.

REGISTERS OF THE HOUR

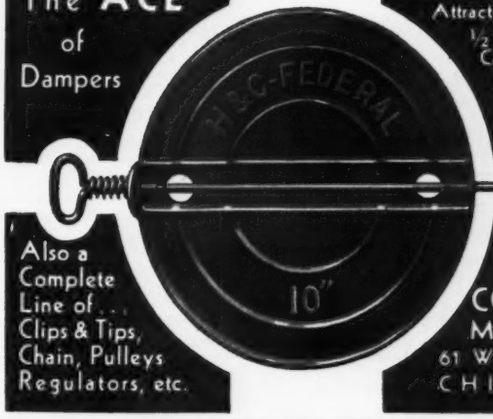
AUER Quality Merchandise Is Your Satisfaction

There is an AUER Register and Grille for every need—the *Colonial, Aueristocrat, Economy, and Pro-Tex-Wall*—but the catalog will tell you better. Write for it today.

AUER REGISTER COMPANY
3608 Payne Avenue CLEVELAND, OHIO

The ACE of Dampers

Reversible . . . Sturdy
Attractively Priced
½ gross to the Carton . . . .
Sizes: 6, 7, 8, 8½, 9, 10, 12, 14 inches



Also a Complete Line of . . . Clips & Tips, Chain, Pulleys Regulators, etc.

HART & COOLEY MFG. CO.
61 W. Kinzie St.
CHICAGO

Mention AMERICAN ARTISAN in your reply—Thank you!

~ MARKET QUOTATIONS ~

AMERICAN ARTISAN is the only publication quoting Prices on Metals, Sheet Metal Equipment and Supplies, Warm Air Heating Supplies and Accessories, corrected bi-weekly. These quotations are not guaranteed but are obtained from reliable sources and reflect nation-wide market conditions at the time of going to press.

NOTE—These prices are Chicago Warehouse Prices, to which must be added territory differentials

METALS

PIG IRON

Chicago Fdy., Noo. 2	$17.00
Southern Fdy., No. 2	17.01
Lake Superior Charcoal	25.04
Malleable	17.00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC	20x28 112 sheets	$23.80
IX	20x28	27.45
IXX	20x28 56 sheets	14.95
IXXX	20x28	16.10
IXXXX	20x28	17.35

TERNE PLATES

	Per Box
IC 20x28, 40-lb. 112 sheets	$22.50
IX 20x28, 40-lb. 112 sheets	25.00
IC 20x28, 25-lb. 112 sheets	19.60
IX 20x28, 25-lb. 112 sheets	22.10
IC 20x28, 20-lb. 112 sheets	18.25
IX 20x28, 20-lb. 112 sheets	20.75

"ARMCO" INGOT IRON PLATES

No. 8 ga.—110 lbs.	$4.15
3/16 in.—100 lbs.	4.05
¼ in.—100 lbs.	3.85

COKE PLATES

Cokes, 80 lbs., base, 20x28	$12.00
Cokes, 90 lbs., base, 20x28	12.20
Cokes, 100 lbs., base, 20x28	13.75
Cokes, 107 lbs., base, IC, 20x28	12.75
Cokes, 135 lbs., base, IX, 20x28	14.75
Cokes, 155 lbs., base 2X, 56 sheets	8.50
Cokes, 175 lbs., base, 3X, 56 sheets	9.35
Cokes, 195 lbs., base, 4X, 56 sheets	10.25

HOT ROLLED ANNEALED SHEETS

Base 10 ga.	per 100 lb.	$3.25
"Armco" 10 ga.	per 100 lbs.	4.15

HOT ROLLED ANNEALED SHEETS 16 GA. AND HEAVIER

No. 18	per 100 lbs.	$3.25
No. 20	per 100 lbs.	3.35
No. 22	per 100 lbs.	3.45
No. 24	per 100 lbs.	3.55
No. 26	per 100 lbs.	3.65
No. 27	per 100 lbs.	3.70
No. 28	per 100 lbs.	3.80

GALVANIZED

No. 16	per 100 lbs.	$3.70
No. 18	per 100 lbs.	3.80
No. 20	per 100 lbs.	3.90
No. 22	per 100 lbs.	4.00
(Standard differentials on extras to apply)		
No. 24	per 100 lbs.	$4.10
No. 26	per 100 lbs.	4.35
No. 27	per 100 lbs.	4.45
No. 28	per 100 lbs.	4.60
"Armco" 24	per 100 lbs.	5.75

BAR SOLDER

Warranted 50-50	per 100 lbs.	$19.25
45-55	per 100 lbs.	17.00
48-52	per 100 lbs.	17.75
Plumbers'	per 100 lbs.	15.50

ZINC

In Slabs	$5.00

SHEET ZINC

Cask Lots (600 lbs.)	$12.00
Sheet Lots (100 lbs.)	13.00

BRASS

Sheets, Chicago base	16 ¾c
Tubing, seamless, Chicago base	20 ½c
Wire, Chicago base	16 ¾c
Rods, Chicago base	13 ¾c

COPPER

Sheets, Chicago base	18 ½c
Tubing, seamless, Chicago base	20 ¾c
Wire, plain rd., 8 B. & S. Ga. and heavier	9 ¾c

LEAD

American Pig	$6.00
Bar	7.50

TIN

Bar Tin	per 100 lbs. $33.00
Pig Tin	per 100 lbs. 32.00

SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	6 ½ per lb.
Mill board, 3/32 to ½	6 ½c per lb.
Corrugated paper (250 sq. ft. per roll)	$4.25 per roll
Pipe joint tape, per 500 lineal feet	$1.50

ASBESTOS SEGMENTS

8 in.	per 25 sets	$1.50
9 in.	per 25 sets	1.75
10 in.	per 25 sets	2.00
12 in.	per 25 sets	2.50

CEMENT, FURNACE

5-lb. cans, net	$0.40
10-lb. cans, net	0.80
25-lb. cans, net	2.00
Per 100 lbs.	7.50

CLIPS

Damper

No-Rivet Steel, with tail pieces, per gross	$8.25
Rivet Steel, with tail pieces, per gross	7.50
Tail pieces, per gross	2.00

COPPER FOOTING

Copper Footing	43 %

CORNICE BRAKES

Chicago Steel Bending

Nos. 1 to 6B	Net

CUT-OFFS

Gal. plain, round or cor. rd.

26 gauge	30 %
28 gauge	35 %

DAMPERS

Yankee Warm Air

7 inch, doz.	$1.60
8 inch, doz.	2.20
9 inch, doz.	2.60
10 inch, doz.	2.80
12 inch, doz.	3.50
14 inch, doz.	5.00

EAVES TROUGH

Galv. Crimpedge, crated	75-15 %
Zinc	60 %

ELBOWS

Conductor Pipe

Galv. plain or corrugated, round flat Crimp.

28 gauge	60-10 %
26 gauge	50 %
24 gauge	15 %

Galvanized Terne Steel

Plain Rd. and Rd. Corr.

28 gauge	60-10 %
26 gauge	50 %
24 gauge	15 %

Square Corrugated

28 gauge	55 %
26 gauge	40 %

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.

Not nested	70 & 5 %
Nested solid	70 & 5 %

Sq. Corr., A. & B. & Octagon

28 gauge	55 %
26 gauge	40 %

Portico

1, 1¼, 1½ inch	45 %

Copper

16 oz., all designs	50 %

Zinc

All styles	60 %

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue

No. 28 Gauge.	Doz.
5 inch	$1.15
6 inch	1.25
7 inch	1.75

Adjustable—Uniform Blue

No. 28 Gauge, Uniform Blue.

5 inch	$1.60
6 inch	1.75
7 inch	2.10

WOOD FACES—60 % off list.

FIRE POTS

	Each
No. 02 Gasoline Torch, 1 qt.	$ 5.13
No. 9250, Kerosene or Gasoline Torch, 1 qt.	6.50
No. 10 Tinner's Furnace Square tank, 1 gal.	11.20
No. 15 Tinner's Furnace Round tank, 1 gal.	10.70
No. 21 Gas Soldering Furnace	3.60
No. 110 Automatic Gas Soldering Furnace	10.50

GLASS

Single and Double Strength, A, all brackets	85 %
Single and Double Strength, B, all brackets	87 %

HANGERS

Conductor Pipe

Milcor Perfection Wire	25 %
Milcor Triplex Wire	10 %

Eaves Trough

Steel (galv. after forming), from list	45 %
Selflock E. T. Wire, List	10 %

HOOKS

Conductor

"Direct Drive" Wrought Iron, for wood or brick	15 %

MITRES

Galvanized Steel Mitres

28 gauge	70-15 %
26 gauge	70- 5 %

PASTE

Asbestos Dry Paste

200-lb. barrel	$15.00
100-lb. barrel	7.75
50-lb. pail	4.50
25-lb. pail	2.50
10-lb. bag	1.20
5-lb. bag	.60

PIPE

Galvanized

Crated and nested (all gauges)	75-12½ %
Crated and not nested (all gauges)	75-7½ %

Furnace Pipe

Double Wall Pipe and Fittings	60 %
Single Wall Pipe, Round Galvanized Pipe	60 %
Galvanized and Tin Fittings	60 %

Lead

Per 100 lbs.	$12.50

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove

28 gauge, 5 inch U. C. nested	$10.00
28 gauge, 6 inch U. C. nested	11.00
28 gauge, 7 inch U. C. nested	13.00
30 gauge, 5 inch U. C. nested	9.25
30 gauge, 6 inch U. C. nested	10.00
30 gauge, 7 inch U. C. nested	12.00

T-Joint Made Up

6-inch, 28 gauge	per doz. $3.40

REGISTERS AND FACES

Floor Registers

Steel and Semi-Steel	40 & 10 %
All Cast Iron	20 %

Baseboard

2-Piece	40 & 10 %
1-Piece	40-10 & 20 %

Adjustable Ventilators

Adjustable Ventilators	40 & 10 %

COLD AIR FACES

Steel and Cast, less than 14" width	40 & 10 %
Steel, 14" and wider	65 & 10 %
Cast, 14" and wider	60 & 10 %
Special Cold Air Faces, Steel or Cast	40 & 10 %

RIDGE ROLL

Galv., Plain Ridge Roll, b'did	75-15-5 %
Galv., Plain Ridge Roll, crated	75-15 %

SCREWS

Sheet Metal

7, ½x¾, per gross	$0.52
No. 10, ¾x3/16, per gross	0.68
No. 14, ¾x¼, per gross	0.83

SHEARS, TINNERS' AND MACHINISTS'

Viking	$22.00

Lennox Throatless

No. 18	35 %
Shear blades	10 %

(F.o.b. Marshalltown, Iowa)

SHOES

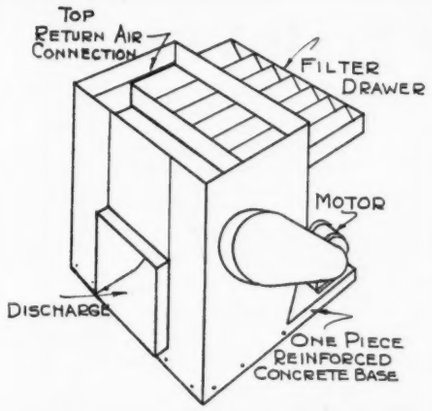
Galv. 28 Gauge, Plain or Corrugated, round flat crimp	60-10 %
26 gauge, round flat crimp	50 %
24 gauge, round flat crimp	15 %

SNIPS

Tinners'	Net

VENTILATORS

Standard	30 to 40 %
Milcor	Net

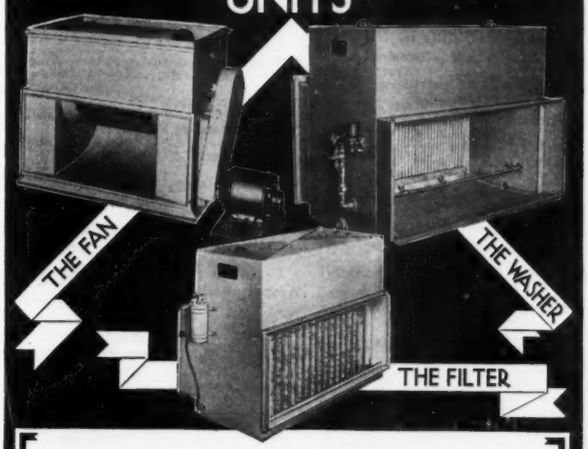


LONG LIFE AIR CLEANER and CONDITIONER

A new and silent blower and filter unit. Comes assembled ready to install. Only unit completely assembled at factory on its own foundation. Total weight only 75 pounds. Capacities up to 1800 c.f.m. at ¼" S.P. Adaptable to warm air, steam, vapor, or hot water air conditioning system. Comes attractively painted. Filter dry type in sliding drawer. S. K. F. ball bearings on fan and motor. Requires attention but once per year. Tested and approved at our factory by Platte Overton. Write today for information regarding agency, prices, terms, and window display. A business getter at a price less than blowers and filters in separate units.

THE GENERAL AIR CONDITIONING COMPANY, INC.
2755 West 31st Street **Chicago, Illinois**

SILENTAIR AIR CONDITIONING UNITS



The tremendous success of SILENTAIR AIR CONDITIONING UNITS results, in no small measure, from the fact that they are MATCHED UNITS. Easily installed with any warm air furnace they bring splendid profit to dealers and comfort and economy to home owners. Write for descriptive literature.

A. GEHRI & CO., INC.
Factory & Main Office - - - - Tacoma, Washington
Eastern Sales Office & Warehouse, Baltimore Trust Bldg., Baltimore

The PIONEER [PATENTS APPLIED FOR] WEATHERKING

"The 5 point air conditioning unit"

1. HEALTH-GIVING
Will maintain up to 50 per cent relative humidity.

5 POINT

2. COMFORT-PROVIDING
Will equalize temperatures between floor and ceilings.

3. ECONOMIC IN OPERATION
Will consume but 3 gallons of water per hour at 30 lbs. pressure. Operates with ¼ hp. motor.

4. EFFICIENT IN OPERATION
Will remove 98 per cent of all dust, soot, smoke and other free solid matter from the air.

5. ORIGINAL
Is the only self-contained circulator, air washer, humidifier and de-humidifier for warm-air furnaces.

We guarantee that no entrained water will come into contact with the furnace casting.

✦

For prices and detailed information and full description write

THE MENOMINEE AIR WASHER CO.
Menominee, Michigan

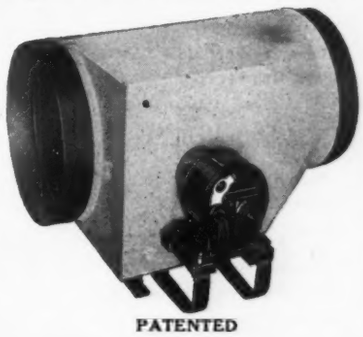
A Heat Hustler Fan Forces Air Through a Single Warm Air Pipe

Heats garages, sun porches and other rooms that will not heat by gravity. Mounts directly in the warm air pipe. Draws heat from the furnace and forces it into the hard-to-heat room. Quick heat for a bathroom.

Four reasons why you should use the American Heat Hustler:

1. It uses a positive pressure, rotary type fan.
2. Motor is outside the warm air flow, adding greatly to life of motor and leaving as much space for gravity air flow as before the Heat Hustler was installed.
3. It is quiet.
4. Furnished for either automatic or manual control.

Price list, with descriptive literature showing different models, sizes, etc., will be sent you by return mail upon receipt of your request. CLIP AND SEND THIS AD IN NOW!



PATENTED

AMERICAN FOUNDRY & FURNACE COMPANY
Bloomington, *World's largest manufacturers of blower furnace systems* **Illinois**

BUYERS' DIRECTORY

Air Cleaners

American Air Filter Co., Inc., Louisville, Ky.
American Fdy. & Furnace Co., Bloomington, Ill.
General Air Conditioning Co., Inc., Chicago, Ill.
Kleenaire Filter Co., Stevens Point, Wis.
Lakeside Co., Hermansville, Mich.
Meyer & Bro., F., Peoria, Ill.

Air Washers

American Machine Products Co., Marshalltown, Iowa
Brundage Co., Kalamazoo, Mich.
A. Gehri & Co., Tacoma, Wash.
Health Air Systems, Ann Arbor, Mich.
Hess Warming & Vent. Co., Chicago, Ill.
Lakeside Co. Hermansville, Mich.
Menominee Air Washer Co., Menominee, Mich.

Asbestos—Liquid

Technical Products Co., Pittsburgh, Pa.

Asbestos Covering and Paper

Standard Asbestos Co. of Chicago, Chicago, Ill.
Wilson, Grant, Inc., Chicago, Ill.

Ash Sifter

Diener Mfg. Co., G. W., Chicago, Ill.

Blast Gates

Berger Bros. Co., Philadelphia, Pa.

Blowers

American Fdy. & Furnace Co., Bloomington, Ill.
American Machine Products Co., Marshalltown, Iowa
Brundage Co., Kalamazoo, Mich.
Emerson Elec. Mfg. Co., St. Louis, Mo.
A. Gehri & Co., Tacoma, Wash.
General Air Conditioner Co., Inc., Chicago, Ill.
Health-Air Systems, Ann Arbor, Mich.
Hess Warming & Vent. Co., Chicago, Ill.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Lakeside Co., Hermansville, Mich.
Menominee Air Washer Co., Menominee, Mich.
Warm Air Furnace Fan Co., Cleveland, Ohio

Brakes—Bending

Dreis & Krump Mfg. Co., Chicago, Ill.
Interstate Machinery Co., Chicago, Ill.

Brakes—Cornice

Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper

American Brass Co., Waterbury, Conn.
Revere Copper and Brass Inc., Rome, N. Y.

Cans—Garbage

Diener Mfg. Co., G. W., Chicago, Ill.

Castings—Malleable

Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal

Globe Iron Roofing and Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Cement—Furnace

Connors Paint Mfg. Co., Wm., Troy, N. Y.
Lastik Products Corp., Pittsburgh, Pa.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Technical Products Co., Pittsburgh, Pa.

Cement—Roofing

Connors Paint Mfg. Co., Wm., Troy, N. Y.
Lastik Products Corp., Pittsburgh, Pa.

Chain—Furnace

Hart & Cooley Mfg. Co., Chicago, Ill.

Chaplets

Fanner Mfg. Co., Cleveland, Ohio

Cleaners—Furnace Vacuum

Baker Furnace Co., Toledo, Ohio
Brillion Furnace Co., Brillion, Wis.
Densmore & Quinlan Co., Kenosha, Wis.
Grand Rapids Furnace Cleaner Co., Grand Rapids, Mich.

Conductor Elbows and Shoes

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Conductor Fittings

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Braden Mfg. Co., Terre Haute, Ind.
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
David Levow, New York, N. Y.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Rival Strap Corp., New York, N. Y.

Conductor Pipe

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Copper

American Brass Co., Waterbury, Conn.
Revere Copper & Brass Inc., Rome, N. Y.

Cornices

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Crimping Machines

Bertsch & Co., Cambridge City, Ind.
Yoder Co., The Cleveland, Ohio

Cut-offs—Rain Water

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Dampers—Quadrants—Accessories

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Aeolus Dickinson Chicago, Ill.
Hart & Cooley Mfg. Co., Chicago, Ill.
Howes Co., S. M., Boston, Mass.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Parker-Kalon Corp., New York, N. Y.
Young Ventilating Co., Cleveland, Ohio

Dampproofings

Lastik Products Corp., Pittsburgh, Pa.

Diffusers—Air Duct

Aeolus Dickinson, Chicago, Ill.

Draft Stabilizers

Silent Automatic Corp., Detroit, Mich.

Drive Screws—Hardened Metallic

Parker-Kalon Corp., New York

Eaves Trough

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Eaves Trough Hangers

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Berger Bros. Co., Philadelphia, Pa.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Fans—Exhaust

Emerson Elec. Mfg. Co., St. Louis, Mo.

Fans—Furnace

A-C Mfg. Co., Pontiac, Ill.
American Fdy. & Furnace Co., Bloomington, Ill.
Emerson Electric Mfg. Co., St. Louis, Mo.
A. Gehri & Co., Tacoma, Wash.
Warm Air Furnace Fan Co., Cleveland, Ohio

Fans—Ventilating

Emerson Elec. Mfg. Co., St. Louis, Mo.

Filters—Furnace

American Air Filter Co., Inc., Louisville, Ky.
A. Gehri & Co., Tacoma, Wash.
Independent Air Filter Co., Chicago, Ill.
Kleenaire Filter Co., Stevens Point, Wis.
Lakeside Co., Hermansville, Mich.

Fluxes—Soldering

Kester Solder Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Forming Rolls

Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.

Furnaces for Gas or Oil

Dail Steel Products Co., Lansing, Mich.
Health-Air Systems, Ann Arbor, Mich.

Furnaces—Gas

American Fdy. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Henry Furnace & Foundry Co., Cleveland, Ohio
Lennox Furnace Co., Marshalltown, Iowa
Meyer Furnace Co., Peoria, Ill.
Payne Furnace and Supply Co., Beverly Hills, Calif.
Round Oak Furnace Co., Dowagiac, Mich.
Western Steel Products Co., Duluth, Minn.
Wise Furnace Co., Akron, Ohio

Furnaces—Gas Auxiliary

Forest City Foundries Co., Cleveland, Ohio

Furnaces—Oil Burning

Motor Wheel Corp., Heater Div., Lansing, Mich.

Furnaces—Warm Air (See Also Unit Air Conditioners)

Acme Tin Plate & Rfg. Supply Co., Philadelphia, Pa.
Agricola Furnace Co., Gadsden, Ala.
American Fdy. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Andes Range & Furnace Corp., Geneva, N. Y.
Armstrong Furnace Co., Columbus, O.
Brillion Furnace Co., Brillion, Wis.
Dail Steel Products Co., Lansing, Mich.
Deshler Foundry & Machine Works, Deshler, Ohio
Enterprise Boiler & Tank Works, Chicago, Ill.
Forest City Foundries Co., Cleveland, Ohio
General HeatingCo., St. Paul, Minn.
Graff Furnace Co., Scranton, Pa.
Hall- Neal Furnace Co., Indianapolis, Ind.
Health-Air Systems, Ann Arbor, Mich.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess Warming & Vent Co., Chicago, Ill.
Lennox Furnace Co., Marshalltown, Iowa
Liberty Foundry Co., St. Louis, Mo.
May Fieberger Furnace Co., Newark, Ohio
Meyer Furnace Co., The, Peoria, Ill.
Midland Furnace Co., Cleveland, Ohio
Motor Wheel Corp., Heater Div., Lansing, Mich.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Payne Furnace & Supply Co., Beverly Hills, Calif.
Peerless Foundry Co., Indianapolis, Ind.
Premier Warm Air Heater Co., Dowagiac, Mich.
Round Oak Furnace Co., Dowagiac, Mich.
Schwab Furnace & Mfg. Co., Cedar Grove, Wis.

Furnaces—Warm Air (See Also Unit Air Conditioners)

U. S. Furnace Co., Youngstown, Ohio
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Wise Furnace Co., Akron, Ohio

Grilles

Auer Register Co., Cleveland, Ohio
Chicago Perforating Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Mfg. Co., Chicago, Ill.
Independent Register & Mfg. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., New York
U. S. Register Co., Battle Creek, Mich.

Guards—Machine and Belt

Chicago Perforating Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill.

Handles—Boiler

Berger Bros. Co., Philadelphia, Pa.

Handles—Furnace Door

Fanner Mfg. Co., Cleveland, Ohio

Handles—Soldering Iron

Parker-Kalon Corp., New York, N. Y.

Heaters—Cabinet

Agricola Furnace Co., Gadsen, Ala.
Motor Wheel Corp., Heater Division, Lansing, Mich.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Payne Furnace & Supply Co., Beverly Hills, Calif.
Premier Warm Air Heater Co., Dowagiac, Mich.
Waterman-Waterbury Co., Minneapolis, Minn.

Heaters—School Room

Meyer Furnace Co., The, Peoria, Ill.
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.

Humidifiers

Automatic Humidifier Co., Cedar Falls, Iowa
Clarm Mechanical Devices Co., Lima, Ohio
Columbus Humidifier Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Hess Warming & Vent. Co., Chicago, Ill
Menominee Air Washer Co., Menominee, Mich.
Meyer & Bro. Co., F., Peoria, Ill.
Sallada Mfg. Co., Minneapolis, Minn.

Humidifier Valves

Apex Regulator Co., Marshalltown, Iowa

Machinery—Culvert

Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.

Machinery—Rebuilt

Interstate Machinery Co., Chicago, Ill.

Machines and Tools—Tinsmith's

Bertsch & Co., Cambridge City, Ind.
Dreis & Krump Mfg. Co., Chicago, Ill.
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Iowa
Niagara Mach. & Tool Wks., Buffalo, N. Y.
Parker-Kalon Corp., New York, N. Y.
Viking Shear Co., Erie, Pa.
Whitney Mfg. Co., W. A., Rockford, Ill.
Yoder Co., The, Cleveland, Ohio

Metal Lath—Expanded

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Miters

Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Braden Mfg. Co., Terre Haute, Ind.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Motors—Electric

Emerson Elec. Mfg. Co. St. Louis, Mo.

(Continued on page 38)

The Viking Shear

Compound lever handle—removable blades. Upper blade away from mechanic enabling easy following of work—an exclusive Viking feature.

Sold Under a Guarantee—Send for Particulars

VIKING SHEAR CO., Erie, Pa.

For Repair Jobs That Last . . Use

GLOBE TRADE MARK BRAND

SHEET METAL PRODUCTS

The standard of quality for nearly a half century. There's a Globe Product for every sheet metal building need. Send for Catalog.

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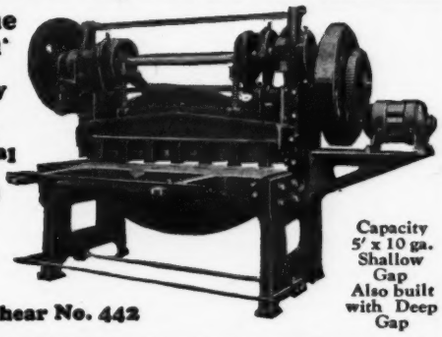
Cincinnati, Ohio

BERTSCH SQUARING SHEAR

Our Line Light and Heavy Machinery for all classes of Sheet Metal Plate and Structural Work



Capacity 5' x 10 ga. Shallow Gap Also built with Deep Gap

Squaring Shear No. 442

BERTSCH & CO., Cambridge City, Ind.

The Sign that Builds Business

MASTER METAL WORKER

TONCAN COPPER MO-LYB DEN-UM IRON

FOR QUALITY SHEET METAL WORK

UNEQUALED FOR ENDURANCE

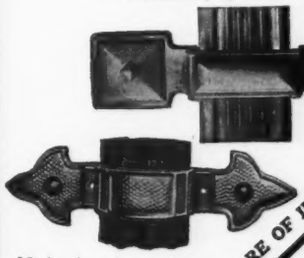
REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

RIVAL STRAP CORP. 308 WEST 20th ST. NEW YORK, N. Y.

The "RIVAL" and "FITRITE"

One-Piece Ornamental Leader Straps
Patented July 10th, 1928; Jan. 6th, 1931



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Made in six styles. Write for folder showing complete line and sizes.

STRAPS SOLD THROUGH JOBBERS ONLY

"Fitrite" Adjustable Pipe Snow Guards
Galvanized Iron or Bronze

TYPE "X"

"FITRITE" Bronze ROOF STRAINERS
3 Types. For Roofs having inside cast iron leader. Type "X" also made in Mal. Iron.

"FITRITE" Mop Heads and Staples
Malleable Iron

"FITRITE" Bronze Beehive Strainer
For Round Leader 3"-4"-5"-6"-7"-8" diameter

"FITRITE" SKYLIGHT GEARING

Iron or Bronze ⅜"-½" and 1" sizes. Made also for chain operation

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DAVID LEVOW 308 WEST 20TH ST. NEW YORK

50,000 USERS can't be wrong

OUR NO. 2 PUNCH is the best all around punch on the market to-day.

TRADE MARK WAN REGISTERED

W. A. WHITNEY MFG. CO.
Established 1908
636 Race St. Rockford, Ill.

BUYERS' DIRECTORY

(Continued from page 36)

Nails—Hardened Masonry
Parker-Kalon Corp., New York, N. Y.

Oil Burners
Northern Oil Burners Inc., Minneapolis, Minn.
Silent Automatic Corp., Detroit, Mich.

Paint
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Perforated Metals
Chicago Perforating Co., Chicago
Harrington & King Perforating Co., Chicago, Ill.

Pipe and Fittings—Furnace
Henry Furnace & Fdy. Co., Cleveland, Ohio
Meyer & Bro., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Peerless Foundry Co., Indianapolis, Ind.

Pokers—Furnace
Fanner Mfg. Co., Cleveland, Ohio
Independent Reg. & Mfg. Co. Cleveland, Ohio

Pulleys—Furnace
Hart & Cooley Mfg. Co., Chicago, Ill.

Punches
Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.
Niagara Mach. & Tool Wks., Buffalo, N. Y.
Parker-Kalon Corp., New York, N. Y.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
W. A. Whitney Mfg. Co., Rockford, Ill.

Punches—Combination Bench and Hand
Niagara Mach. & Tool Wks., Buffalo, N. Y.
Parker-Kalon Corp., New York, N. Y.

Punches—Hand
Niagara Mach. & Tool Wks., Buffalo, N. Y.
Parker-Kalon Corp., New York, N. Y.
W. A. Whitney Mfg. Co., Rockford, Ill.

Putty-Stove
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Radiator Cabinets
Hart & Cooley Mfg. Co., Chicago, Ill.
Tuttle & Bailey Mfg. Co., New York

Registers—Warm Air
Auer Register Co., Cleveland, Ohio
Forest City Foundries Co., Cleveland, Ohio
Hart & Cooley Mfg. Co., Chicago, Ill.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Register & Mfg. Co., Cleveland, Ohio
Meyer & Bro., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Symonds Register Co., St. Louis, Mo.
Tuttle & Bailey Mfg. Co., New York
United States Register Co., Battle Creek, Mich.

Registers—Wood
Auer Register Co., Cleveland, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Regulators—Automatic Furnace
Hart & Cooley Mfg. Co., Chicago, Ill.
Lakeside Co., Hermansville, Mich.
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Modern Heat Regulator Co., Cleveland, Ohio
Pioneer Heat Regulator Co., Dayton, Ohio
White Mfg. Co., Minneapolis, Minn.

Regulators—Automatic Heat
Hart & Cooley Mfg. Co., Chicago, Ill.
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Modern Heat Regulator Co., Cleveland, Ohio
Pioneer Heat Regulator Co., Dayton, Ohio
Tuttle & Bailey Mfg. Co., New York
White Mfg. Co., Minneapolis, Minn.

Repairs—Stove and Furnace
Brauer Supply Co., A. G., St. Louis, Mo.
Des Moines Stove Repair Co., Des Moines, Iowa
Northwestern Stove Repair Co., Chicago, Ill.
Peerless Fdry. Co., Indianapolis, Ind.

Solder—Rosin Core
Kester Solder Co., Chicago, Ill.

Ridging
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Rings—Furnace Casing
Forest City Foundries Co., Cleveland, Ohio

Roof Flashing
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Roof Paints
Connors Paint Mfg. Co., Wm.,
Lastik Products Corp., Pittsburgh, Pa.

Roofing—Iron and Steel
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., The, Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Roofing—Tin and Terne
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Republic Steel Corp., Youngstown, Ohio

Rubbish Burners
Hart & Cooley Mfg. Co., Chicago, Ill.

School—Sheet Metal Pattern Drafting
St. Louis Technical Institute, St. Louis, Mo.

Schools—Warm Air Heating
St. Louis Technical Institute, St. Louis, Mo.

Screws—Hardened Metallic Drive
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Parker-Kalon Corp., 200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Parker-Kalon Corp., New York

Screens—Perforated Metal
Chicago Perforating Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill.

Scuppers
Aeolus Dickinson, Chicago, Ill

Shears—Hand and Power
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Iowa
Niagara Mach. & Tool Wks., Buffalo, N. Y.
Viking Shear Co., Erie, Pa.
Yoder Co., The, Cleveland, Ohio

Sheet Metal Screws—Hardened, Self-Tapping
Parker-Kalon Corp., New York

Sheets—Alloy
Inland Steel Co., Chicago, Ill.
International Nickel Co., New York, N. Y.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Sheets—Black and Galvanized
Granite City Steel Co., Granite City, Ill.
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Sheets—Copper
American Brass Co., Waterbury, Conn.
Revere Copper & Brass Inc., Rome, N. Y.

Sheets—Iron
Granite City Steel Co., Granite City, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Sheets—Copper Bearing Steel
Granite City Steel Co., Granite City, Ill.
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Sheets—Nickel
International Nickel Co., New York

Sheets—Pure Iron Copper Alloy
Newport Rolling Mill Co., Newport, Ky.

Sheets—Special Finish
Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Shingles and Tile—Metal
Globe Iron Roofing & Corrugated Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Skylights
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Snips
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Snow Guards
Berger Bros. Co., Philadelphia, Pa.
David Levow, New York, N. Y.
Rival Strap Corp., New York, N. Y.

Solder
Kester Solder Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Solder—Acid Core
Kester Solder Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Solder—Self-Fluxing
Kester Solder Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Soldering Furnaces
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Soot Destroyer
Saginaw Salt Prod. Co., Saginaw, Mich.

Specialties—Hardware
Diener Mfg. Co., G. W., Chicago, Ill.

Stars—Hard Iron Cleaning
Fanner Mfg. Co., Cleveland, Ohio

Stove Pipe and Fittings
Meyer & Bro. Co., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Stove and Furnace Trimmings
Fanner Mfg. Co., Cleveland, Ohio

Strainers—Roof
David Levow, New York, N. Y.
Rival Strap Corp., New York, N. Y.

Straps—Ornamental Pipe
David Levow, New York, N. Y.
Rival Strap Corp., New York, N. Y.

Tinplate
Granite City Steel Co., Granite City, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Republic Steel Corp., Youngstown, Ohio

Tools—Tinsmith's
(See Machines—Tinsmith's)

Torches
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Unit Air Conditioners
American Fdry. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Andes Range & Furnace Corp., Geneva, N. Y.
Armstrong Furnace Co., Columbus, Ohio
Dail Steel Products Co., Lansing, Mich.
Henry Furnace & Fdry. Co., Cleveland, Ohio
Health-Air Systems, Ann Arbor, Mich.
Hess Warming & Ventilating Co., Chicago, Ill.
Lennox Furnace Co., Marshalltown, Iowa
May-Fieberger Co., Newark, Ohio
Meyer Furnace Co., Peoria, Ill.
Midland Furnace Co., Columbus, Ohio
Motor Wheel Corp., Lansing, Mich.
Payne Furnace & Supply Co., Beverly Hills, Calif.
Waterman-Waterbury Co., Minneapolis, Minn.

Vacuum Cleaners—Furnace
(See Furnace Cleaners)
Baker Furnace Co., Toledo, Ohio
Brillion Furnace Co., Brillion, Wis.
Densmore & Quinlan Co., Kenosha, Wis.

Ventilators—Ceiling
Hart & Cooley Mfg. Co., Chicago, Ill.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Reg. & Mfg. Co., Cleveland, Ohio

Ventilators—Floor
Aeolus Dickinson, Chicago, Ill.

Ventilators—Roof
Aeolus Dickinson, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Burt Mfg. Co., Akron, Ohio
Jordan & Co., Paul R., Indianapolis, Ind.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Water Pressure Regulators
Apex Regulator Co., Marshalltown, Iowa

Wood Faces—Warm Air
Auer Register Co., Cleveland, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

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It will pay you to investigate our repair part service. Parts for furnaces, stoves and oil stoves.

[Any part for any type, style or make]

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FULLY ELECTRIC MOTOR-DRIVEN
Limit Controls Available
TRADE PRICE $24.50
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Product of TIME-O-STAT CONTROLS
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Warms in Winter—Cools in Summer
BLOWERS AIR WASHERS
Low Priced *Efficient*
The HEALTHAIR CONDITIONER
A complete Air Conditioning unit combining air washer, blower and humidifier. In summer it cools; in winter circulates purified, humidified, washed air through the house.
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The most economical because it's better and complete
IT'S TROUBLE-PROOF
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"Constantly Improved, Supreme in their Field"
Guaranteed for 10 Years
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"CHAMPION" Miters will outlast the Eaves Trough. Galvanized after formation. Complete line of sizes and gauges.
For sale by all Jobbers.
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Alphabetical List of Advertisers

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in alternate issues is marked with an asterisk.

A-C Mfg. Co. 33
Aeolus Dickinson 30
Agricola Furnace Co., Inc. 31
American Air Filter Co., Inc.* ....
American Brass Co. 3
American Foundry & Furnace Co. 35
American Furnace Co. 29
American Machine Products Co.* ....
Andes Range & Furnace Corp.* ....
Apex Regulator Co.* ....
Armstrong Furnace Co.* ....
Auer Register Co. 33
Automatic Humidifier Co. 33

Baker Furnace Co.* ....
Barnes Metal Prod. Co.* ....
Berger Bros. Co. 30
Bertsch & Co. 37
Braden Mfg. Co 39
Brauer, A. G., Supply Co. 39
Brillion Furnace Co. 30
Brundage Co.* ....
Burt Mfg. Co.* ....

Chicago Perforating Co.* ....
Clarm Mechanical Devices Co. 33
Columbus Humidifier Co. 27
Connors Paint Co., Wm.* ....

Dail Steel Products Co.* ....
Densmore & Quinlan Co.* ....
Deshler Foundry & Machine Works* ....
Des Moines Stove Repair Co. 33
Diener Mfg. Co., Geo. W. 32
Dreis & Krump Mfg. Co. 32

Economy Baler Co. 39
Emerson Electric Mfg. Co.* ....
Enterprise Boiler & Tank Works* ....

Fanner Mfg. Co. 31
Forest City Foundries Co. 31

Gehri, A., & Co. 35
General Air Conditioner Co., Inc. 35
General Heating Co.* ....
Globe Iron Roofing & Corrugating Co. 37
Graff Furnace Co.* ....
Granite City Steel Co.* ....
Grand Rapids Furnace Cleaner Co.* ....

Hall-Neal Furnace Co.* ....
Harrington & King Perf. Co. 32
Hart & Cooley Mfg. Co. 33
Health-Air Systems 39
Henry Furn. & Fdy. Co. ..... Back Cover
Hess Warming & Ventilating Co.* ....
Howes Co., S. M. 39

Independent Air Filter Co.* ....
Independent Reg. & Mfg. Co.* ....
Inland Steel Co. 7
International Nickel Co. 5
Interstate Machinery Co.* ....

Jordan & Co., Paul R. 32

Kester Solder Co. 6
Kleenaire Filter Co. 32

Lakeside Co.* ....
Lastik Products Co., Inc. 33
Lennox Furnace Co. 30
Levow, David 37
Liberty Foundry Co. 31

Marshalltown Mfg. Co.* ....
May-Fiebeger Co.* ....
McIlvaine Burner Corp.* ....
Menominee Air Washer Co. 35
Meyer & Bro., F.* ....
Meyer Furnace Co. 8
Midland Furnace Co.* ....
Milcor Steel Co.* ....
Minneapolis-Honeywell Reg. Co. 39
Modern Heat Regulator Co.* ....
Motor Wheel Corp., Heater Div.* ....
Mt. Vernon Furnace & Mfg. Co.* ....

Newport Rolling Mill Co.* ....
Niagara Machine & Tool Works* ....
Northern Oil Burners, Inc.* ....
Northwestern Stove Repair Co.* ....

Osborn Co., The J. M. & L. A.* ....
Overton, Platte 42

Parker-Kalon Corp.* ....
Payne Furnace & Supply Co.* ....
Peerless Foundry Co. 42
Pioneer Heat Regulator Co.* ....
Premier Warm Air Heater Co. 39

Republic Steel Corp. 37
Revere Copper & Brass, Inc.* ....
Rival Strap Corp. 37
Round Oak Furnace Co. 31
Rybolt Heater Co.* ....
Ryerson & Son, Inc., Jos. T.* ....

Saginaw Salt Products Co. 33
Sallada Mfg. Co. 30
St. Louis Tech. Inst. 41
Schwab Furnace & Mfg. Co.* ....
Silent Automatic Corp.* ....
Standard Asbestos Mfg. Co.* ....
Standard Fdy. & Furn. Co.* ....
Symonds Register Co. 32

Technical Products Co. 30
Time-O-Stat Controls, Div. Minneapolis-Honewell Regulator Co. 39

United States Register Co.* ....

Viking Shear Co. 37

Waterman-Waterbury Co. ..... Front Cover
Western Steel Products Co. 31
White Mfg. Co. 29
Whitney Mfg. Co., W. A. 37
Wilson, Grant, Inc.* ....
Wise Furnace Co. 27

Yoder Co., The* ....
Young Ventilating Co., The 32

THE BUYERS' DIRECTORY APPEARS ON PAGES 36 AND 38

Classified Advertising

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddie Company, Marshfield, Wis.

For Sale—Well established Warm Air Heating and Sheet Metal Shop doing nice business with A-1 reputation in town of 6000. Several hundred furnaces installed in community. Everything you need in equipment to work with; can step right in. Priced to sell. A wonderful opportunity. Good reasons for disposing of this business. Address W-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

For Sale—Sheet metal body and fender radiator shop in Colorado town of 8,000. Reason for selling, illness. Address Z-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Manufacturers' Agents

Wanted to sell our furnace cement, roofing paint and cement and calking compounds. Our consistent trade paper advertising is creating demand. Exclusive territory given with liberal commission. Address C-543, AMERICAN ARTISAN, 139 N. Clark Street, Chicago, Illinois.

Wanted to Buy—Sheet Metal shop in rural town. Must be doing enough business for two men. Give full particulars, year established, and price in first letter. Address O-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Wanted—Place to open shop or to manage one. Now operating as first class steam fitter and plumber, with full set of tools and a few hundred dollars to invest. Can estimate and lay out all work. Best of references as to honesty, ability, sobriety, etc. Prefer some town in Illinois. Address S-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

For Sale—Best sheet metal and furnace business in town of 12,000. Well equipped shop. Very little competition. Wonderful opportunity for right party who thoroughly understands the business. Would not consider selling if other interests didn't necessitate leaving the country. You must look this proposition over to appreciate its value. Priced cheap. Address E-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Wanted—Will either buy or operate on shares a well established warm air heating and sheet metal business in central states. Give full information. Address Apartment 5, 219½ North Federal Avenue, Mason City, Iowa. J-543

HELP WANTED

Wanted—Experienced sheet metal and furnace salesman for jobber in middle west. State previous connections and experience. Correspondence strictly confidential. Address H-543, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

HELP WANTED

Manufacturers Agents

We have a complete line of air filters, and want representation. Write for details to P-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Wanted—Experienced furnace salesman. Must be experienced in forced air and gravity heating. Address E-543, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

SITUATION WANTED

Situation Wanted—By a first class sheet metal mechanic, one who is steady and understands the business thoroughly, having spent 25 years at this trade. Can handle anything that comes up in a sheet metal shop from estimating to the finish. Can go anywhere. Address Edward Collins, 154 Oakland Avenue, Macon, Georgia. G-542

Situation Wanted — Permanent connection with a reliable company, one that is promoting reconditioning air systems for all types of buildings, wanted. Have complete knowledge of layout, estimating and sales promotion. Best of references. Address H-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By a first class auto radiator repair man. Can rebuild and recore any make. Prefer Illinois or Indiana. Address A. B. Creacy, 115 Merchant Street, Havana, Illinois. M-542

Situation Wanted—By all around sheet metal worker and furnace man. Can handle anything in the business, and have equipment to set or reset any furnace without helper. Will go anywhere. Address F-543, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By reliable sheet metal worker. Long general experience in warm air heating, sheet metal work and plumbing. Will go anywhere. Can figure jobs and handle men. Neat and accurate with work. A-1 habits. Address A-543, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By furnace salesman, traveling Kansas, Missouri and Nebraska for the past 15 years. Thoroughly acquainted with the heating trade and the heating business. Age, 39. Photograph and best of references on request. Address G-543, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

SITUATION WANTED

Situation Wanted—By all around sheet metal worker. Can handle any branch of the trade such as cornice, skylights, ventilation and warm air heating. Can make estimates and run the shop. Would prefer employment with good hardware company or job shop. Can do any of the work that comes in. Address D-543, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Wanted—By graduate Mechanical Engineer, with twenty years experience in sheet metal construction and roofing in all their branches, a position with some reliable concern as estimater, pattern cutter, detailer, shop manager, foreman, or all these combined. Good references from past employers, as to character and ability. Married and strictly sober. Address T-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—In small town by combination plumber, steam fitter, sheet metal, furnace, metal roofing, and hardware man. Experienced in all these lines. Good character and ability. Married and strictly sober. Michigan preferred. Wish year around position. Address Steam Fitter, 4632 Second Boulevard, Detroit, Michigan. K-543

TOOLS AND MACHINERY

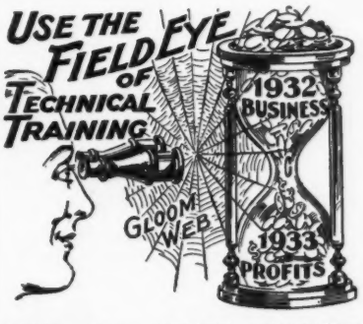
We are in the market for a second hand Electric Spot Welder, capacity two pieces of ⅛" metal. Address X-542, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

For Sale—Double Truss Cornice Brake, 8 ft., $40; 30" Square Shears, $20; 30" Rollers, $5; ½" Electric Hand Drill, $25. Address Otto Schuman, 450 Roosevelt Road, Wisconsin Rapids, Wisconsin. Y-542

For Sale—Christie vacuum cleaner complete. Has been used only a few times. Price, $200. Address Frank Sehy, 1206 South Clay Avenue, Jacksonville, Illinois. B-543

BOOKS

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches, giving all necessary guidance in fan work blower and separator construction. 159 pages, 5x8. 51 figures. Cloth. $2.00. Order from Book Department, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Illinois.



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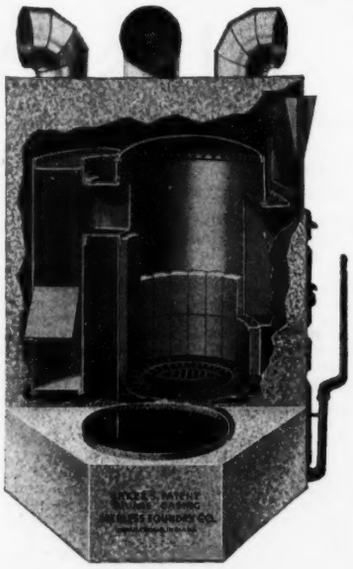
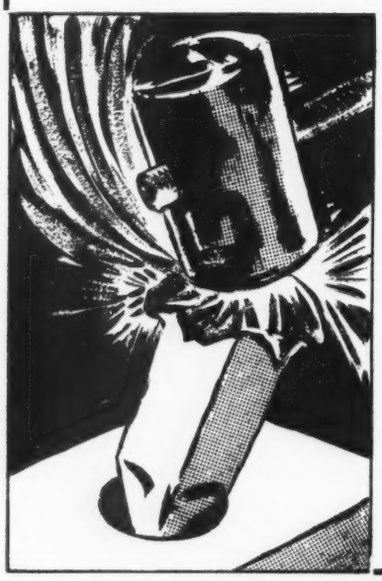
THE ST. LOUIS TECHNICAL INSTITUTE 4543 CLAYTON AVE. ST. LOUIS, MO.

FITTING SQUARE PEGS IN ROUND HOLES





IT CAN'T BE DONE!

NEITHER can you build a round furnace with a common square casing, and expect to improve the efficiency over a round casing.

Peerless square casing (Patented) will outperform any square or round casing job. Just make us prove it, and you, too, will hook up with Peerless.

THE PEERLESS FOUNDRY COMPANY

Pioneers in Warm Air Heating Since 1895

INDIANAPOLIS . . . INDIANA

Have Your Trunk Ducts and Branches Designed by Overton for 40c Per Warm Air Grille!

Dealers can save from $50.00 to $100.00 on each job in material and labor alone, through using scientifically designed trunk lines and branches. The time saved in an attempt to balance a poorly designed system will more than pay for the cost of my engineering service.

NOTE THESE PRICES!

RESIDENCES

Up to and including 5 rooms	$1.10 per room
5 to 9 rooms inclusive	$1.00 per room
10 to 15 rooms inclusive	$0.85 per room
16 to 20 rooms inclusive	$0.80 per room
21 rooms and over	$0.75 per room

CHURCHES

Up to and including 50,000 cu. ft. gross content	$0.12 per 1,000 cu. ft.
50,000 cu. ft. and over	$0.10 per cu. ft.

SCHOOLS

20,000 to 50,000 cu. ft.	$0.30 per 1,000 cu ft.
50,000 to 70,000 cu. ft.	$0.25 per 1,000 cu. ft.
70,000 to 100,000 cu. ft.	$0.20 per 1,000 cu. ft.
100,000 cu. ft. and over	$0.15 per 1,000 cu. ft.

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Duct systems	$0.12 per 1,000 cu. ft. gross content
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SPECIAL NOTE

Where heating systems include filters, washers, temperature control as EXTRA EQUIPMENT—add 20 per cent to listed prices.

Where filters, washers, temperature controls are A PART OF THE HEATER AND ARE UNDER ONE CASING—listed prices apply.

For complete working plans detailing all trunk lines in ¼-inch scale and showing details of elbows, stacks, branches, sections, cross sections of walls—add 50 per cent to list prices.

Add $0.01 per square foot of direct radiation for combination systems.

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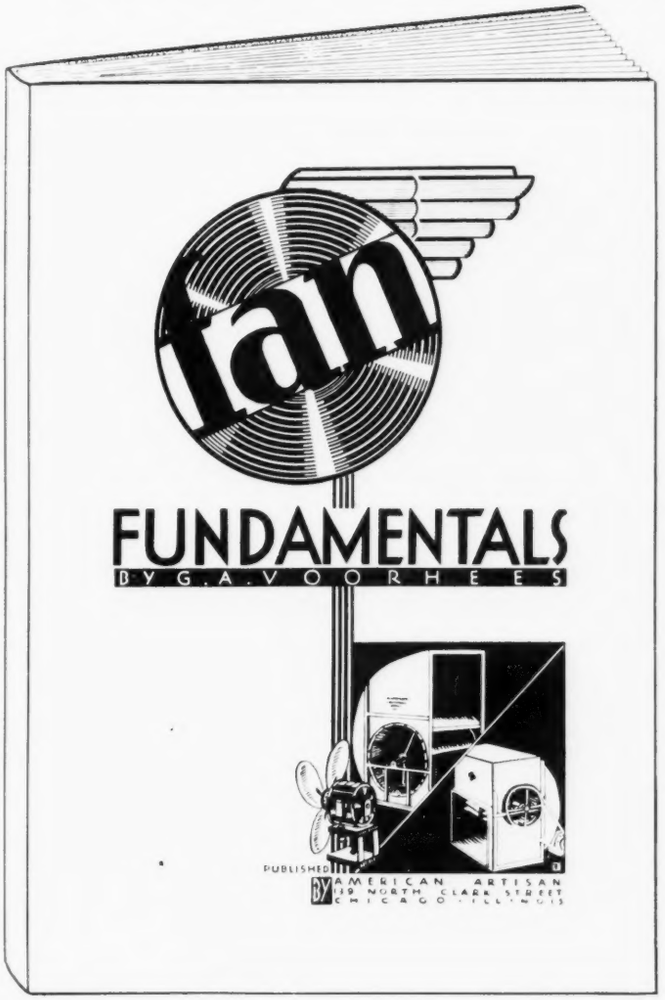

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Ten Chapters

Frictional Resistance in Heating Systems
How Location Effects Fan Efficiency
Booster and Pressure Type Fan Systems
Static Pressure
Construction and Operation of Propeller Fans
Construction and Operation of Centrifugal Fans
What Fans Can and Cannot Do
Sources of Noise in Fan Installations
How to Determine Fan, Pulley and Motor Speeds and Sizes
Typical Fan Problems and Their Solution

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A Contractor says:

"Mr. Voorhees surely makes things very clear and if it had been my privilege to have had this book some years ago, it would have saved me time, grief and money." A. J. Nydam, Nydam & Cole, Grand Rapids, Mich.

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"I was just glancing through the book and I am sure it is a very valuable piece of literature and feel positive this is something that a good many engineers and contractors in the Forced Air Heating Work will be able to make valuable use of."

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While this book is cheap at the price of one dollar you have the privilege of examining your copy and if for any reason you are not satisfied that you made a good investment return the book in 10 days after purchase and your money will be refunded.

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139 North Clark Street
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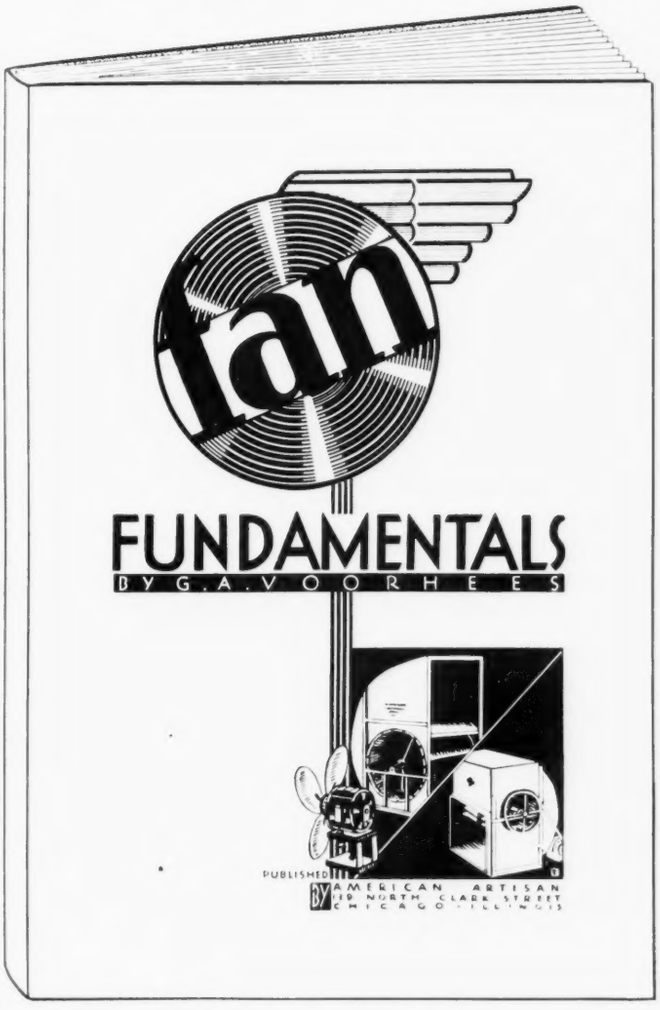

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While this book is cheap at the price of one dollar you have the privilege of examining your copy and if for any reason you are not satisfied that you made a good investment return the book in 10 days after purchase and your money will be refunded.

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The Air Conditioning Business Is Getting Better All the Time

IT'S marvelous how the public is responding to the appeal made by air conditioning. The furnace dealer with a first-class modern unit like the Moncrief Gas Heating Air Conditioner to offer his community can make money.

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We supply everything used on a warm air heating job

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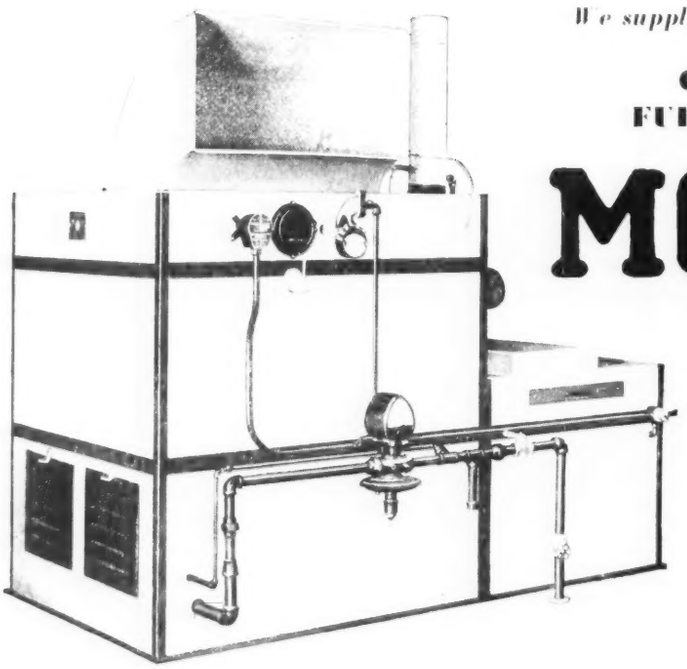

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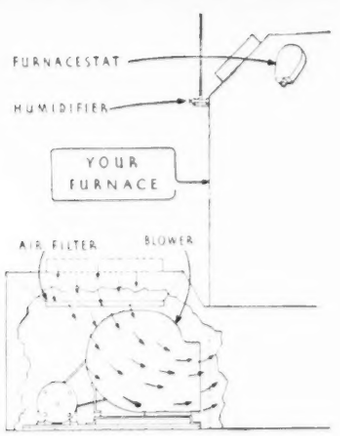
Fully automatic, circulates, cleans and humidifies the air. Equipped with every device that affords safe, carefree heating comfort.



MONCRIEF *Auxiliary Air Conditioner*

May be attached to any furnace already installed. Contains electric driven blower, air filter and automatic drip humidifier. Send for circular.